10-Pump 80-Station Controller
Models: VTC, SCC, CLC

Part Number: 882.99007.00
Bulletin Number: CNV3-620
Effective: August 1, 2012

an ACS Group company

Write Down Your Serial Numbers Here For Future Reference:

_____ _____

_____ _____

_____ _____

We are committed to a continuing program of product improvement.
Specifications, appearance, and dimensions described in this manual are subject to change without notice.

DCN No. _____
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Shipping Information

Unpacking and Inspection

You should inspect your equipment for possible shipping damage. Thoroughly check the equipment for any damage that might have occurred in transit, such as broken or loose wiring and components, loose hardware and mounting screws, etc.

In the Event of Shipping Damage

According to the contract terms and conditions of the Carrier, the responsibility of the Shipper ends at the time and place of shipment.

Notify the transportation company's local agent if you discover damage

Hold the damaged goods and packing material for the examining agent's inspection. **Do not return any goods before the transportation company's inspection and authorization.**

File a claim with the transportation company. Substantiate the claim by referring to the agent's report. A certified copy of our invoice is available upon request. The original Bill of Lading is attached to our original invoice. If the shipment was prepaid, write us for a receipted transportation bill.

Advise customer service regarding your wish for assistance and to obtain an RMA (return material authorization) number.

If the Shipment is Not Complete

Check the packing list as back-ordered items are noted on the packing list. In addition to the equipment itself, you should have:

☑.. Bill of lading

☑.. Packing list

☑.. Operating and Installation packet

☑ Electrical schematic and panel layout drawings

☑.. Component instruction manuals (if applicable)

Re-inspect the container and packing material to see if you missed any smaller items during unpacking.

If the Shipment is Not Correct

If the shipment is not what you ordered, **contact the shipping department immediately**. For immediate assistance, please contact the correct facility located in the technical assistance section of this manual. Have the order number and item number available. Hold the items until you receive shipping instructions.

Returns

Do not return any damaged or incorrect items until you receive shipping instructions from the shipping department.

Credit Returns

Prior to the return of any material, **authorization** must be given by **the manufacturer.** A RMA number will be assigned for the equipment to be returned.

Reason for requesting the return must be given.

ALL returned material purchased from **the manufacturer** returned is subject to 15% ($75.00 minimum) restocking charge.

ALL returns are to be shipped prepaid.

The invoice number and date or purchase order number and date must be supplied.

No credit will be issued for material that is not within the manufacturer's warranty period and/or in new and unused condition, suitable for resale.

Warranty Returns

Prior to the return of any material, authorization must be given by **the manufacturer.** A RMA number will be assigned for the equipment to be returned.

Reason for requesting the return must be given.

All returns are to be shipped prepaid.

The invoice number and date or purchase order number and date must be supplied.

After inspecting the material, a replacement or credit will be given at **the manufacturer's** discretion. If the item is found to be defective in materials or workmanship, and it was manufactured by our company**,** purchased components are covered under their specific warranty terms.

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Chapter 1: Safety

1-1 How to Use This Manual

Use this manual as a guide and reference for installing, operating, and maintaining your equipment. The purpose is to assist you in applying efficient, proven techniques that enhance equipment productivity.

This manual covers only light corrective maintenance. No other maintenance should be undertaken without first contacting a service engineer.

The Functional Description section outlines models covered, standard features, and optional features. Additional sections within the manual provide instructions for installation, pre-operational procedures, operation, preventive maintenance, and corrective maintenance.

The Installation chapter includes required data for receiving, unpacking, inspecting, and setup of the equipment. We can also provide the assistance of a factory-trained technician to help train your operator(s) for a nominal charge. This section includes instructions, checks, and adjustments that should be followed before commencing with operation of the equipment. These instructions are intended to supplement standard shop procedures performed at shift, daily, and weekly intervals.

The Operation chapter includes a description of electrical and mechanical controls, in addition to information for operating the equipment safely and efficiently.

The Maintenance chapter is intended to serve as a source of detailed assembly and disassembly instructions for those areas of the equipment requiring service. Preventive maintenance sections are included to ensure that your equipment provides excellent, long service.

The Troubleshooting chapter serves as a guide for identification of most common problems. Potential problems are listed, along with possible causes and related solutions.

The Appendix contains technical specifications, drawings, schematics, and parts lists. A spare parts list with part numbers specific to your machine is provided with your shipping paperwork package. Refer to this section for a listing of spare parts for purchase. Have your serial number and model number ready when ordering.

Safety Symbols Used in this Manual

The following safety alert symbols are used to alert you to potential personal injury hazards. Obey all safety messages that follow these symbols to avoid possible injury or death.

⚠ DANGER — ***DANGER indicates an imminently hazardous situation, which, if not avoided, will result in death or serious injury.***

⚠ WARNING — ***WARNING indicates a potentially hazardous situation or practice which, if not avoided, could result in death or serious injury.***

⚠ CAUTION — ***CAUTION indicates a potentially hazardous situation or practice which, if not avoided, may result in minor or moderate injury or in property damage.***

Safety Tags and Warning Labels

Hazard Alert Symbol	Description/Explanation	Preventative Maintenance
	High voltage inside enclosure. The electrical enclosure is supplied with 3-phase electrical power. Use caution when using or maintaining this product.	Every six months inspect all electrical connections for secure attachment. For further information see the Maintenance Chapter in this manual.

Mandatory Symbol	Description/Explanation
	Read Operators Manual. This equipment must be operated and maintained by properly trained personnel. The information contained within this manual must be read and understood prior to operating this equipment.
	Disconnect before opening. Before servicing or maintaining the machine be sure to disconnect the power and/or compressed air source to avoid electrical shock and/or serious injury.

1-2 Warnings and Precautions

Our equipment is designed to provide safe and reliable operation when installed and operated within design specifications, following national and local safety codes. This may include, but is not limited to OSHA, NEC, CSA, SPI, and any other local, national and international regulations.

To avoid possible personal injury or equipment damage when installing, operating, or maintaining this equipment, use good judgment and follow these safe practices:

- ☑ **Read and follow these operation and installation instructions when installing, operating, and maintaining this equipment. If these instructions become damaged or unreadable, additional copies are available from the manufacturer.**

- ☑ Follow all **SAFETY CODES**.
- ☑ Wear **SAFETY GLASSES** and **WORK GLOVES**.
- ☑ Work only with approved tools and devices.
- ☑ Disconnect and/or lock out power before servicing or maintaining the equipment.
- ☑ Use care when **LOADING**, **UNLOADING**, **RIGGING**, or **MOVING** this equipment.

- ☑ Operate this equipment within design specifications.
- ☑ **OPEN**, **TAG**, and **LOCK ALL DISCONNECTS** before working on equipment. You should remove the fuses and carry them with you.
- ☑ Make sure the equipment and components are properly **GROUNDED** before you switch on power.
- ☑ Use extreme caution when working with your conveying system. **HIGH VACUUM** can be dangerous. Keep body parts, tools, clothing, and debris away from vacuum inlets.
- ☑ When welding or brazing in or around this equipment, make sure **VENTILATION** is **ADEQUATE**. **PROTECT** adjacent materials from flame or sparks by shielding with sheet metal. An approved **FIRE EXTINGUISHER** should be close at hand and ready for use if needed.
- ☑ Do not restore power until you remove all tools, test equipment, etc., and the equipment and related components are fully reassembled.
- ☑ Only **PROPERLY TRAINED** personnel familiar with the information in this manual should work on this equipment.

We have long recognized the importance of safety and have designed and manufactured our equipment with operator safety as a prime consideration. We expect you, as a user, to abide by the foregoing recommendations in order to make operator safety a reality.

1-3 Responsibility

These machines are constructed for maximum operator safety when used under standard operating conditions and when recommended instructions are followed in the maintenance and operation of the machine.

All personnel engaged in the use of the machine should become familiar with its operation as described in this manual.

Proper operation of the machine promotes safety for the operator and all workers in its vicinity.

Each individual must take responsibility for observing the prescribed safety rules as outlined. All warning and danger signs must be observed and obeyed. All actual or potential danger areas must be reported to your immediate supervisor.

General Responsibility

No matter who you are, safety is important. Owners, operators and maintenance personnel must realize that every day, safety is a vital part of their jobs.

If your main concern is loss of productivity, remember that production is always affected in a negative way following an accident. The following are some of the ways that accidents can affect your production:

- Loss of a skilled operator (temporarily or permanently)
- Breakdown of shop morale
- Costly damage to equipment
- Downtime

An effective safety program is responsible and economically sound.

Organize a safety committee or group, and hold regular meetings. Promote this group from the management level. Through this group, the safety program can be continually reviewed, maintained, and improved. Keep minutes or a record of the meetings.

Hold daily equipment inspections in addition to regular maintenance checks. You will keep your equipment safe for production and exhibit your commitment to safety.

Please read and use this manual as a guide to equipment safety. This manual contains safety warnings throughout, specific to each function and point of operation.

Operator Responsibility

The operator's responsibility does not end with efficient production. The operator usually has the most daily contact with the equipment and intimately knows its capabilities and limitations.

Plant and personnel safety is sometimes forgotten in the desire to meet incentive rates, or through a casual attitude toward machinery formed over a period of months or years. Your employer probably has established a set of safety rules in your workplace. Those rules, this manual, or any other safety information will not keep you from being injured while operating your equipment.

Learn and always use safe operation. Cooperate with co-workers to promote safe practices. Immediately report any potentially dangerous situation to your supervisor or appropriate person.

Maintenance Responsibility

Proper maintenance is essential to safety. If you are a maintenance worker, you must make safety a priority to effectively repair and maintain equipment.

Before removing, adjusting, or replacing parts on a machine, remember to turn off all electric supplies and all accessory equipment at the machine, and disconnect and lockout electrical power. Attach warning tags to the disconnect switch.

Be sure that all non-current carrying parts are correctly connected to earth ground with an electrical conductor that complies with current codes. Install in accordance with national and local codes.

When you have completed the repair or maintenance procedure, check your work, remove your tools. Rigging, and handling equipment.

Reporting a Safety Defect

If you believe that your equipment has a defect that could cause injury, you should immediately discontinue its use and inform the manufacturer.

The principle factors that can result in injury are failure to follow proper operating procedures (i.e. lockout/tagout), or failure to maintain a clean and safe working environment.

Chapter 2: Functional Description

2-1 Models Covered in This Manual

This manual provides operation, installation, and maintenance instructions for the VTC, SCC and CLC Series 10-Pump, 80-Station Conveying Controllers. Model numbers are listed on the serial tag. Make sure you know the model and serial number of your equipment before contacting the manufacturer for parts or service.

The 10-Pump, 80-Station Conveying Controller is a programmable logic controller, with 24 VDC control circuit, easy-to-use touch screen operator interface terminal and optional audible/visual alarm.

2-2 General Description

Our material conveying systems create vacuum for the automatic conveying of most free-flowing, dry, pelletized, or granular materials. Material characteristics determine the type of equipment needed to convey the material.

A typical use for our equipment is an in-plant distribution system for plastic processing plants.

Our central vacuum systems are as varied as the applications they service. The tubing and equipment furnished in our system is designed to convey the material(s) specified at the time of purchase at specific rates and distances.

We can advise you on your system capabilities based on system makeup, distance, material, and conveying rates you want.

System capacity is directly affected by the pressure drop in the overall system, such as number of material line bends, pipe length, Y-tubes, T-tubes, etc.

Use the minimum effective amount of vinyl flex hose to maximize material line efficiency. Keep material lines as straight as possible. Refer to the Mechanical Components Product manual (Part No. 882.99774.00) for installation recommendations.

NOTICE ***Vacuum leaks occurring anywhere in your system reduce capacity.***

2-3 Standard Features

Mechanical Features

Time-fill Capability. The specific length of time allowed for material to convey to a station.

Volume-fill Capability. Allows for a station to be conveyed to until the prox at the top of the station detects material**.**

Vent Valve. The vent valve unloads the vacuum pump motor and allows it to keep running during short periods when material conveying is not required. Constantly starting and stopping the vacuum pump will damage it over time. The vent valve also protects the conveying system from damage during high vacuum conditions. The valve plunger will unseat itself and allow ambient air to leak into the vacuum lines when the vacuum climbs too high.

Central Purging. This feature allows any remaining material to be cleaned out of the material line after every convey.

Local Blowback Filter Cleaning. When this feature is enabled, the controller periodically sends compressed air backward through the pump's air filter to dislodge accumulated dust and debris.

Implosion Filter Cleaning. When this feature is enabled, the controller periodically pulls a vacuum on the filter chamber and then releases it to dislodge accumulated dust and debris.

Grinder Empty. This feature allows a station to receive material from a grinder bin. The level of material in the bin is monitored to assure there is enough material to convey.

Material Sharing. This feature allows multiple pumps (6 max.) to be connected to a material source. The controller will let one pump at a time draw from the material source.

Electrical Features

- 115/1/60 or 220/1/50 supply voltage
- 24 VDC control voltage
- Lockable ON/OFF switch
- Branch circuit fusing
- Fully accessible NEMA 12-style electrical control enclosure

Controller Features

- Allen-Bradley Compact Logix programmable controller with 10" color touch screen operator interface
- Diagnostics, operating instructions and parts information are built into the interface
- Controls up to eighty (80) stations and up to ten (10) Vacuum Power Units.
- Controls up to three central alarms
- Allows operator to transfer stations to a standby pump when a pump fails
- Electronic time delay between pump startups to prevent an excessive power demand at your facility

2-4 Optional Features

Noise Filter/Surge Suppressor. Provides protection to electronic devices in the control panel from power surges and electrical noise.

Closed-Loop Conveying. This feature allows material to be conveyed and processed without being contaminated by outside influences (such as dust, other materials, etc.).

Additional audible/visual alarm with silence button. Alarm light and horn assembly that can be remote mounted and wired into the controller to indicate an alarm condition.

Remote Interface. (4 max.)

2-5 Safety Devices and Interlocks

This section includes information on safety devices and procedures that are inherent to the Controller. This manual is not intended to supersede or alter safety standards established by the user of this equipment. Instead, the material contained in this section is recommended to supplement these procedures in order to provide a safer working environment.

At the completion of this section, the operator and maintenance personnel will be able to do the following:

- Identify and locate specific safety devices.
- Understand the proper use of the safety devices provided.
- Describe the function of the safety device.

Safety Circuit Standards

Safety circuits used in industrial systems protect the operator and maintenance personnel from dangerous energy. They also provide a means of locking out or isolating the energy for servicing equipment.

Various agencies have contributed to the establishment of safety standards that apply to the design and manufacture of automated equipment. The Occupational Safety and Health Administration (OSHA) and the Joint Industrial council (JIC) are just a few of the organizations that have joined with the plastics industry to develop safety standards.

Every effort has been made to incorporate these standards into the design of the controller; however, it is the responsibility of the personnel operating and maintaining the equipment to familiarize themselves with the safety procedures and the proper use of any safety devices.

Fail Safe Operation

If a safety device or circuit should fail, the design must be such that the failure causes a “Safe” condition. As an example, a safety switch must be a normally open switch. The switch must be held closed with the device it is to protect. If the switch fails, it will go to the open condition, tripping out the safety circuit.

At no time should the safety device fail and allow the operation to continue for example, if a safety switch is guarding a motor, and the safety switch fails, the motor should not be able to run.

Safety Device Lock-Outs

Some safety devices disconnect electrical energy from a circuit. The safety devices that are used in this Controller are primarily concerned with electrical power disconnection.

Always disconnect and lockout all electrical power and pneumatic (i.e. compressed air) sources prior to servicing the 10-Pump, 80-Station Controller. Failure to do so may result in serious injury. No one but the person who installed the lockout may remove it.

Chapter 3: Installation

3-1 Uncrating

10-Pump, 80-Station Controllers are shipped mounted on a skid, enclosed in a plastic wrapper, and contained in a cardboard box.

1. Pry the crating away from the skid.

NOTICE

Remove the nails holding the box to the skid and lift the box off carefully; avoiding staples in the 1' x 4' wood supports. Cut the steel banding.

2. Use a pry bar to remove the blocks securing the unit to the skid.
3. Lift unit from sides, inserting forklift under the base. The forks must be equidistant from the centerline of the unit and the unit must be balanced on the forks. Lift slowly and only high enough to clear the skid. Use a pry bar if necessary to carefully remove the skid from the unit.
4. Lower slowly.

3-2 Mounting the Control Panel

NOTICE

Before you mount the panel, consider how you run wiring to the KwikLink connectors, ArmorBlocks, vacuum hoppers, the filter chamber atmospheric valve (if so equipped) and the pump motor starter(s), vacuum switch(es), and vent valve(s).

Mount the control panel on a flat, vertical area. It should be a visible area that gives your operator access to the control. The panel requires a low voltage power drop as listed on the serial tag.

3-3 System Installation Overview

Installing the 10-pump, 80-station controller is easy and straightforward. Because the system uses networked distributed I/O modules, you'll only need to run two cables for the entire system.

The following is a typical installation sequence:

1. Set up mounting plates with tubing clamps; install KwikLink™ connectors and ArmorBlocks bases onto mounting plates as required.
2. Install KwikLink connectors and ArmorBlock™ base plates to vacuum tubing at each node location, just before a T-fitting or valve.
3. Run the black power and the grey network flat cables from the start of the system to the end, attaching them to vacuum tubing with nylon cable ties
4. Install cable terminations.
5. Determine location of network system nodes, and set addresses for ArmorBlocks as required.
6. Set up and connect to the controller and, if purchased, remote display. Connect grey patch cords from controller terminals to KwikLink connectors installed in Step 3.

7. After determining quantity and location(s) of where to install system power supply(ies) (**consult factory**); set up and connect to KwikLink connectors installed in Step 3.
8. Set up and connect vacuum receiver stations to ArmorBlocks installed in Step 3, using yellow patch cords.
9. Set up and connect vacuum pump stations and filter chambers to ArmorBlocks installed in Step 3, using yellow patch cords.
10. Determine location(s) of central alarm(s); set up and connect alarms using yellow patch cords.

The following sections provide detailed information on these installation steps.

3-4 Electrical Connections

Refer to local electrical codes, the schematic and connection diagrams supplied with this unit and the serial tag for wiring considerations. Run all wiring in conduit if codes require it.

Making Control Panel Power Drop Wiring Connections

Hardwire the input power at 115/1/50-60 VAC or 220/1/50 VAC, depending on the specifications, which are located on the Control Panel Serial Tag. The control enclosure draws less than five (5) amps during normal operation at 115/1/50-60 VAC. The main power switch is located on the right side of the enclosure.

⚠WARNING ***We recommend that you protect PLC memory by providing the control panel with a dedicated circuit, a true earth ground, and a spike/surge protector.***

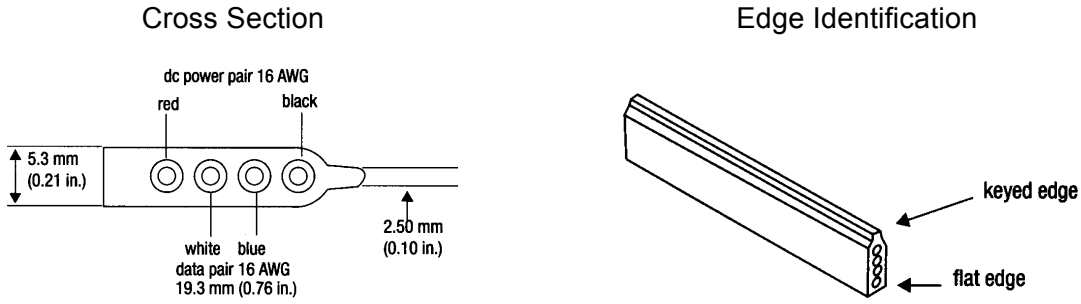
Running KwikLink™ Cables

About KwikLink Flat Cables

KwikLink flat cable is physically keyed to prevent wiring mishaps. This type of cable is unshielded and contains four conductors. Use a long-jawed straight-bladed cable cutter at least 1½" long to cut KwikLink flat cable.

You'll install two (2) colors of flat cable: black and grey. The black cable transmits output power, and the grey cable transmits input power and data transmission.

Figure 1: KwikLink Cable Cross-Section, Edge Identification



Installing KwikLink Cable

Before you install flat cable, determine how much length you need to install black power cable and grey data cable. Typical installations have equal lengths of each. **This is a good time to plan for the future,** and run these cables to each possible location in the plant. Use a straight-blade cable cutter to make the cut at each end.

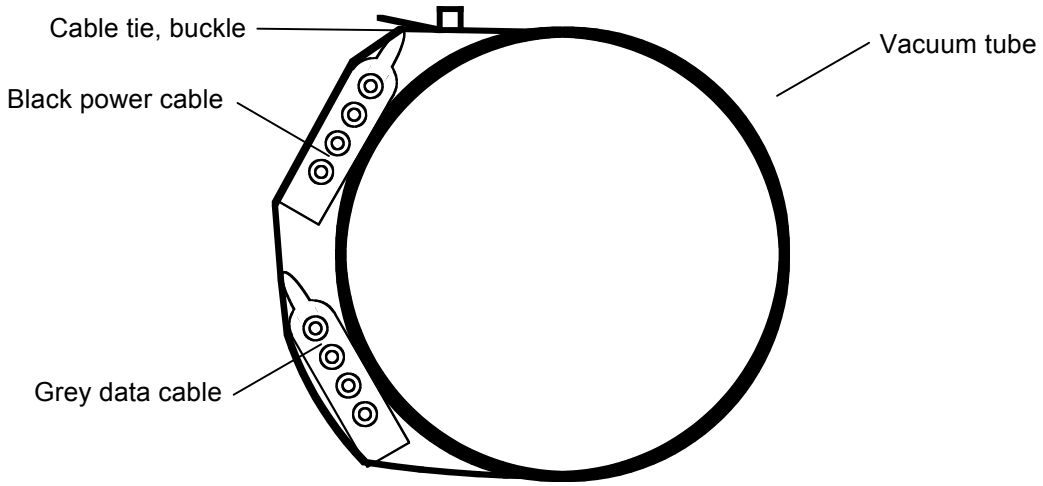
To install KwikLink cables:

1. Cut both black and grey cables to the proper length.
2. Use cable ties to attach KwikLink cables, ***black cable above grey cable,*** on the **vacuum tubing**. Attach cable to the tubing with cable ties at about three-foot (3 ft./ 1 m) intervals. Make sure that cable ties are snug, but not tightened enough to bend the flat cable.

⚠CAUTION

Install KwikLink cable on vacuum tubing* only. DO NOT *install KwikLink cable on material conveying tubing, as static electricity formed at material lines could disrupt system operation.

Figure 2: Side View of a Typical Power Cable and Data Cable Installation



NOTICE

When approaching a node location, stop the attachment process. Run the cables over the node area (such as a T-valve) and make sure you create a slight amount of slack when continuing the attachment with cable ties. Doing so lets you install KwikLink connectors or ArmorBlocks with greater ease, with less stress on the cable.

Setting Up and Installing Mounting Plates

Setting Up Mounting Plates

It's a good idea to get all your mounting plates set up with KwikLink connector bases or ArmorBlock cable bases *before* installation, as your system layout determines.

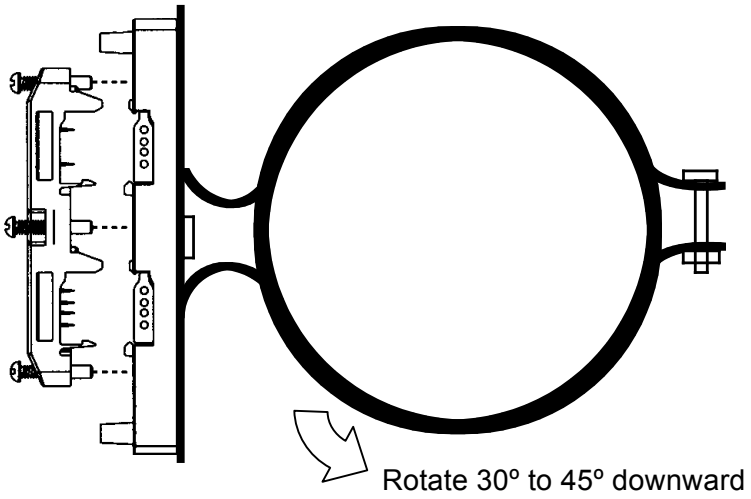
NOTICE

ArmorBlock cable bases are installed on mounting plates perpendicular in orientation to the flat cable runs.

Vacuum hoppers/receiver stations and vacuum pumps require 8-connector ArmorBlocks; central alarm stations require 4-connector ArmorBlocks.

Make sure that each mounting plate has properly attached tube clamps as required. **Each mounting plate requires two (2) tube clamps.** Always use locking washers, especially in high-vibration environments.

Figure 3: Side View of a Typical Mounting Plate Assembly with ArmorBlock Base



Installing Assembled Mounting Plates

After you've set up the mounting plates:

1. Install them at each node location by clipping the tubing clamps onto the vacuum tube, just before the node area (such as a T-valve).
2. Orient the mounting plate parallel with the flat cables and at a 30º to 45º angle so the KwikLink connector or ArmorBlock faces the operator on the floor; torque the tubing clamp fasteners until tight.

The flat cable will be installed inside KwikLink connectors and ArmorBlocks as described in the following sections of this chapter.

Terminating Cable Runs

After you've run the black and grey network cables, you need to properly terminate the ends of the cables. By doing so, you'll insure that the network runs properly. You will also have the benefit of being able to measure voltage in the system without disrupting operation.

This section lists procedures for terminating these cables. To properly terminate a cable run:

1. Mount three standard KwikLink connectors to a mounting plate in a triangle configuration. See Figure 4 on Page 17 for an illustration.

NOTICE

Make sure that each connector is installed with the hinge side down.

2. Mount the tubing clamps to the mounting plates. Each mounting plate requires two (2) tubing clamps.

3. Mount the **standard resistor cap** from the KwikLink connector kit on the **top center** KwikLink connector for the black power flat cable. ***The standard resistor cap has metal prongs in the center.***

   Repeat for the outside end KwikLink connector on the grey data flat cable.

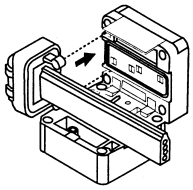
4. For the **inside** KwikLink connector (next to the outside end on the grey cable), mount a separately-packaged **blank cap** on it **instead** of the standard resistor cap in the KwikLink connector kit.

NOTICE ***Discard the standard resistor cap to eliminate confusion.***

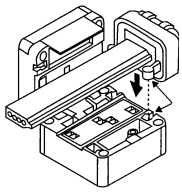
5. Mount the mounting plate assembly on the vacuum line at the end of the cable run. See Page 14 for more information.
6. Using the straight-blade cable cutter, carefully trim each flat cable so it sticks out past the final KwikLink connector by ¼" to ⅜".

   Place a dust cap over the end of the trimmed cable.

7. Lay the dust cap and cable into the KwikLink connector so the dust cap tabs engage in the connector slots. ***The dust cap tabs should fit into the connector slots perfectly.***



Left



Right

8. Lay the cable in the hinged base, noting the correct keyed profile; flat edge toward the hinge, keyed edge toward the latch. ***Make sure that the cable and dust cap are properly seated inside.***
9. **Making sure that the cable is completely straight**, ***carefully*** close the hinged assembly, and apply firm, even pressure until the first latch locks into place.

NOTICE ***Make sure that the flat cable is completely straight before continuing!!***

The latch has two catches; the first loosely holds the connector on the cable, the second requires more pressure to close the connector tightly. The cable must be in the correct position for the connector to close properly.

10. Drive the two screws at the center points about halfway down; first on the latch side, then the hinge side.
11. Continue to tighten the screws a little at a time until fully tightened; no more than 15 inch-pounds (5.6 N•m) of torque.

NOTICE

You can only pierce the cable once. Once pierced, the KwikLock connector must not be removed. This insures that the inner conductors are not exposed to the elements.

Installing Inside KwikLink Connectors with Blank Caps

Once installed on the grey data cables, these connectors permit you to measure voltage in the system so you can analyze how it is working. ***The system cannot work properly unless these inside-mounted connectors have the blank (non-conductor) caps installed.***

1. Lay the cable in the hinged base, noting the correct keyed profile; flat edge toward the hinge, keyed edge toward the latch. ***Make sure that the cable is properly seated inside.***
2. **Making sure that the cable is completely straight**, ***carefully*** close the hinged assembly, and apply firm, even pressure until the first latch locks into place.

NOTICE

Make sure that the flat cable is completely straight before continuing!!

The latch has two catches; the first loosely holds the connector on the cable, the second requires more pressure to close the connector tightly. The cable must be in the correct position for the connector to close properly.

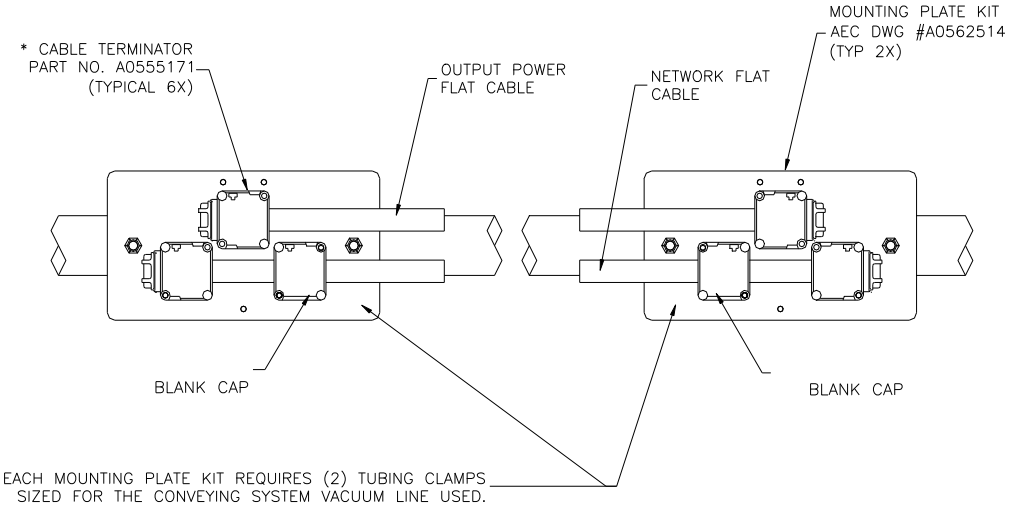
3. Drive the two screws at the center points about halfway down; first on the latch side, then the hinge side.
4. Continue to tighten the screws a little at a time until fully tightened; no more than 15 inch-pounds (5.6 N•m) of torque.

NOTICE

You can only pierce the cable once. Once pierced, the KwikLock connector must not be removed. This insures that the inner conductors are not exposed to the elements.

The system should now be properly terminated. You can now continue to install components on the system.

Figure 4: Proper Termination Connections



Addressing and Installing ArmorBlocks™

Addressing ArmorBlocks

An ArmorBlock permits you to give it a number "address" so that the controller network system can recognize its location and function. ArmorBlocks are used at vacuum hopper/receiver, pump, and alarm node locations.

ArmorBlock Address Ranges

The number range of ArmorBlock addresses are as follows:

- **01 to 40** — Vacuum hopper/receiver stations; use a leading zero for numbers 01 to 09.
- **41 to 50** — Pump stations
- **51 to 60** — Central purge valves
- **61 to 63** — Alarm stations

Setting ArmorBlock Addresses

Locate the rotary switches underneath the ArmorBlock. The two switches are:

- **MSD** (most significant digit) for tens
- **LSD** (least significant digit) for units/ones

For example, if you wanted to set an address at **36**, you set the MSD rotary switch at **3** and the LSD rotary switch at **6**. To set an address of **8**, set the MSD rotary switch at **0** (leading zero), then set the LSD rotary switch at **8**.

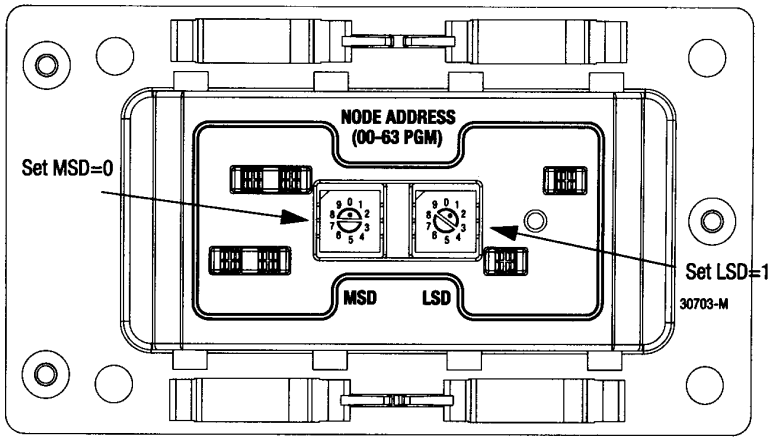
- Using a permanent black marker, **write the number of the address on the white label** located on the bottom front of the ArmorBlock. We suggest that you **place numbered tags at node locations** to ease installation and reduce any confusion of locations.

To set the node address:

- Use a small straight-bladed screwdriver to rotate the switches. Line up the small arrowhead on the switch with the number you want to select.

The following figure shows that the address is set at **01**; the MSD rotary switch is set at **0** and the LSD rotary switch is set at **1**.

Figure 5: ArmorBlock Address Node Rotary Switches



Installing ArmorBlocks

The ArmorBlock cable base should already be attached to the mounting plate, aligned so it is **perpendicular** to the flat cables. If not, reinstall it with its proper alignment.

To install the flat cables in the ArmorBlock cable base:

1. Lay the flat cable into the ArmorBlock cable base, grey data cable on the bottom and the black power cable on the top, making sure that the keyed edge is properly seated toward the top.

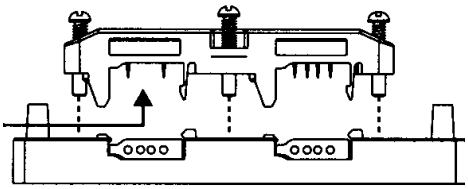
⚠CAUTION

EXERCISE CARE when handling the seal block.

Cable contacts are SHARP!

Only ONE attempt to pierce the cable is allowed for proper contact.

Figure 6: Using seal block to pierce cable



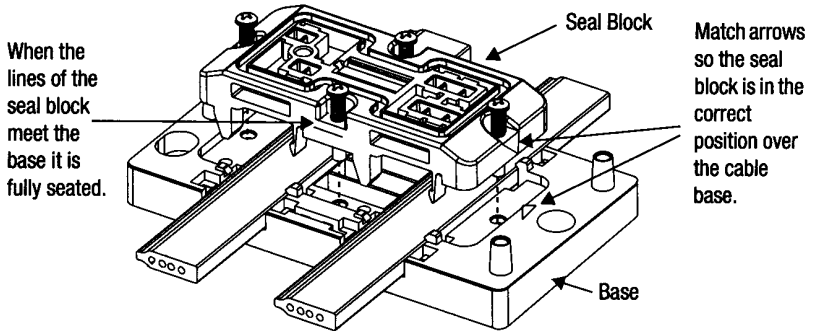
2. Align the seal block so the L-shaped tabs are towards the top, and the arrows are matched on the bottom of the cable base and seal block. Make sure that the arrows and the four captive screws on the seal block are properly aligned. ***Gently press it into place.***

   Make sure that you align the seal block properly when you attach it to the base. Doing so maintains the integrity of the sealed base.

NOTICE

You can only pierce the cable once. Once pierced, the seal block must not be removed. This insures that the inner conductors are not exposed to the elements.

Figure 7: Securing the Seal Block to the Cable Base


When the lines of the seal block meet the base it is fully seated.
Seal Block
Match arrows so the seal block is in the correct position over the cable base.
Base

To secure the seal block:

1. Start the threads of each of the four captive screws into the cable base receptacle holes.
2. Drive each of the screws about halfway down, **using the proper torque sequence:** Bottom screw, top screw, left screw, right screw. Doing so insures that the cables are pierced evenly.
3. **Using the proper torque sequence**, tighten each screw, ***a little at a time,*** until the seal block is fully seated into the cable base. Tighten to no more than 8 to 10 inch-pounds (3.0 to 3.7 N•m) of torque.

   The three seat lines on the seal block should meet the cable base, indicating that the seal block is fully seated. The seal block clips should also click into place onto the corresponding cable base slots.

Installing KwikLink™ Connectors

KwikLink connectors let you connect the controller and the power supply to the system. They are also used to electronically terminate power cable and data cable runs.

Just like ArmorBlocks, KwikLink connectors are *insulation displacement connectors* (IDCs).

⚠CAUTION

Exercise care when installing Kwiklink connectors.

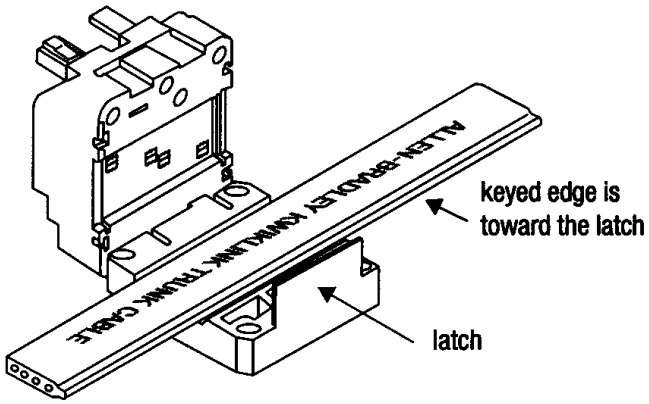
IDC blades on KwikLink connectors are SHARP!

Gently push back any protruding IDC blades before ***installing flat cables inside.***

The KwikLink connector should already be attached to the mounting plate, so the **hinge side is down.** If not, reinstall it with its proper alignment, along the correct flat cable. See the installation drawing located in your Customer Information Packet for further details.

To install flat cable inside KwikLink connectors:

1. Lay the cable in the hinged base, noting the correct keyed profile; flat edge toward the hinge, keyed edge toward the latch. ***Make sure that the cable is properly seated inside.***



2. **Making sure that the cable is completely straight**, ***carefully*** close the hinged assembly, and apply firm, even pressure until the first latch locks into place.

NOTICE

Make sure that the flat cable is completely straight before continuing!

The latch has two catches; the first loosely holds the connector on the cable, the second requires more pressure to close the connector tightly. The cable must be in the correct position for the connector to close properly.

3. Drive the two screws at the center points about halfway down; first on the latch side, then the hinge side.
4. Continue to tighten the screws a little at a time until fully tightened; no more than 15 inch-pounds (5.6 N•m) of torque.

NOTICE

You can only pierce the cable once. Once pierced, the KwikLink connector must not be removed. This insures that the inner conductors are not exposed to the elements.

Connecting the Controller to the Network

To connect the controller to the network, make sure that the KwikLink connector is properly installed on the flat grey data cable. To connect:

1. Attach the keyed round connector to the terminal of the controller marked DeviceNet. Tighten the cord grip ring until snug.
2. Align the square connector of the grey drop cable so the cable leads down from the connector. Evenly press the square connector onto the top of the KwikLink connector. It should make two audible snaps when properly seated.
3. Dress the excess cable with cable ties so it does not interfere with operation and gives a pleasing appearance.

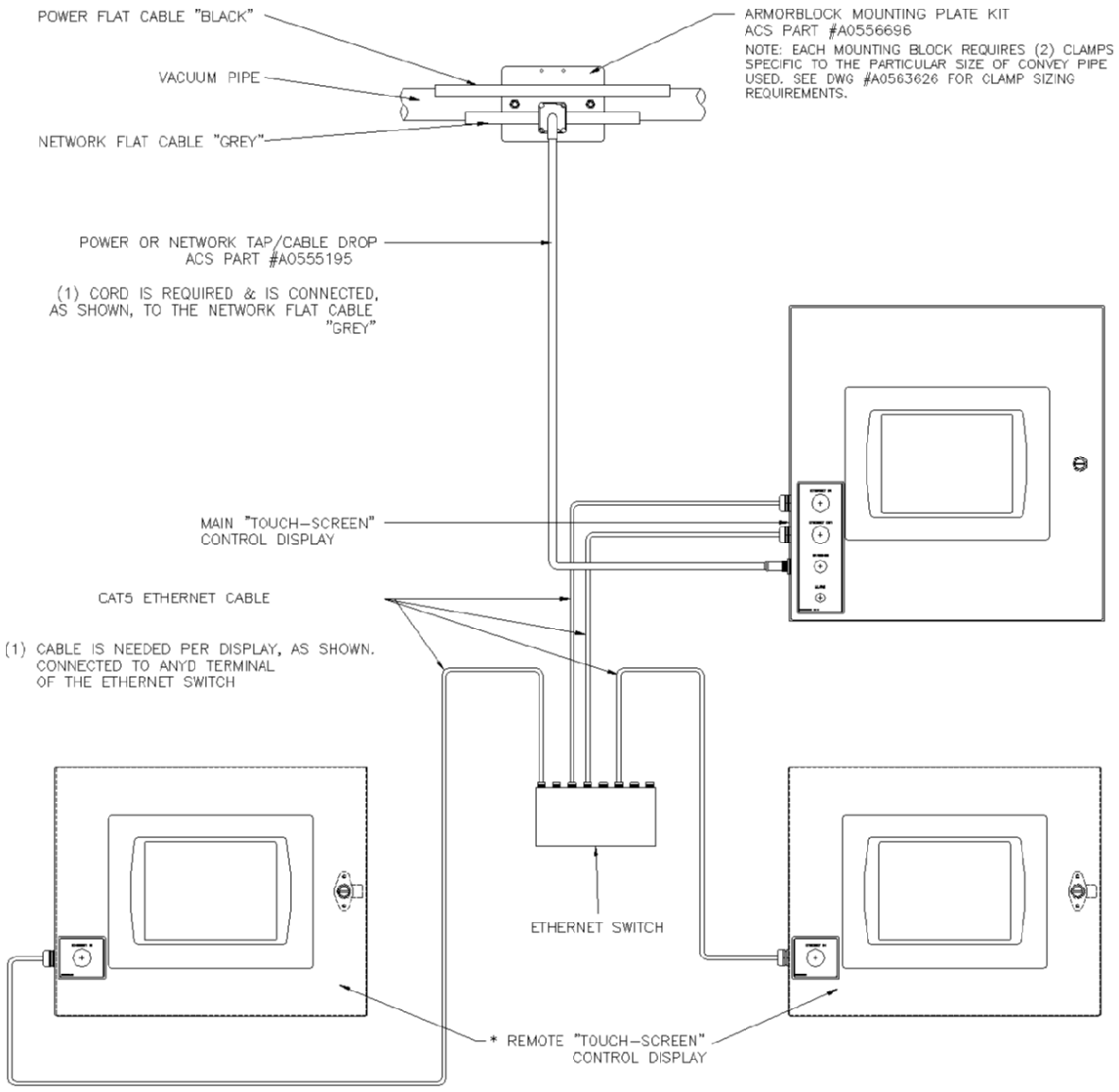
Connecting the Remote Interface to the Main Controller

After selecting a location and installing the remote interface, connect it to the main controller:

1. Install the Ethernet switch in a location safe from electrical interference and physical damage.
2. Install the remote interface(s) in their desired locations.

3. Run the cables from the remote interface(s) to the switch and the main controller, neatly dressing the cable with ties so that it does not interfere with system operation and it gives a neat appearance.
4. Attach RJ45 connectors at each cable end following the connector manufacturers instructions.
5. The “Ethernet out” connection on the main controller should connect to the “Ethernet in” connection on the switch.
6. The “Ethernet out” connections on the switch should connect to the “Ethernet in” connections on the main controller and the remote interface(s).

Figure 8: Proper Controller and Remote Interface Connections


POWER FLAT CABLE "BLACK"
VACUUM PIPE
NETWORK FLAT CABLE "GREY"
ARMORBLOCK MOUNTING PLATE KIT
ACS PART #A0556696
NOTE: EACH MOUNTING BLOCK REQUIRES (2) CLAMPS SPECIFIC TO THE PARTICULAR SIZE OF CONVEY PIPE USED. SEE DWG #A0563626 FOR CLAMP SIZING REQUIREMENTS.
POWER OR NETWORK TAP/CABLE DROP
ACS PART #A0555195
(1) CORD IS REQUIRED & IS CONNECTED, AS SHOWN, TO THE NETWORK FLAT CABLE "GREY"
MAIN "TOUCH-SCREEN" CONTROL DISPLAY
CAT5 ETHERNET CABLE
(1) CABLE IS NEEDED PER DISPLAY, AS SHOWN. CONNECTED TO ANYD TERMINAL OF THE ETHERNET SWITCH
ETHERNET SWITCH
* REMOTE "TOUCH-SCREEN" CONTROL DISPLAY

Connecting the Power Supply Enclosure to the Network

The power supply provides electrical power to make the system work. Some network layouts require more than one power supply.

Location is also an important consideration when locating power supply enclosures on your network. Contact the factory for determining how many power supply enclosures your system needs, as well as where they need to be installed.

After you've mounted the power supply enclosure(s), you can connect them to your network. To connect a power supply to the network:

1. Attach a KwikLink connector included in the bag with power cables to the flat cables. One connector is used for the network grey cable and one connector is used for the auxiliary power black cable.
2. Align the square connector of the grey drop cable so the cable leads down from the connector. Evenly press the square connector onto the top of the **bottom** KwikLink connector. It should make two audible snaps when properly seated.
3. Align the square connector of the black drop cable so the cable leads down from the connector. Evenly press the square connector onto the top of the **upper** KwikLink connector. It should make two separate, audible snaps when properly seated.
4. Attach the keyed round connectors to the receptacles on the side of the power supply enclosure marked **24 VDC POWER SUPPLY**. Tighten the cord grip ring until snug.
5. Dress the excess cables with cable ties so they do not interfere with operation and to give a pleasing appearance.

If more than one power supply is required to properly energize the grey network flat cable:

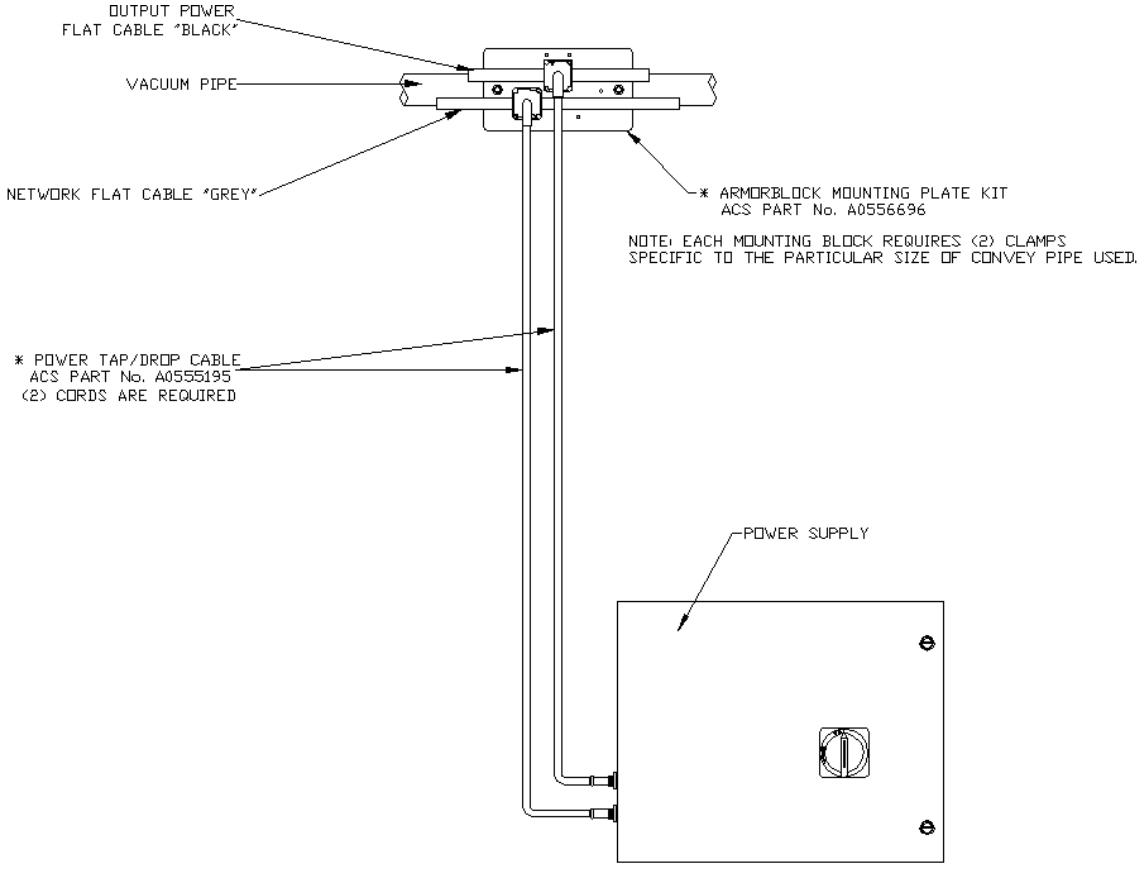
1. Remove the terminal block jumpers on all but the most centrally-located network power supply enclosures.

   For locations of jumpers, refer to the drawing shipped inside the power supply enclosure

NOTICE

Only one power supply should be connected to each section of the black auxiliary power flat cable. Do not remove any jumpers on power supplies that transmit energy to the black flat power cable.

Figure 9: Proper Power Supply Enclosure Connections


OUTPUT POWER
FLAT CABLE "BLACK"
VACUUM PIPE
NETWORK FLAT CABLE "GREY"
* ARMORBLOCK MOUNTING PLATE KIT
ACS PART No. A0556696
NOTE: EACH MOUNTING BLOCK REQUIRES (2) CLAMPS
SPECIFIC TO THE PARTICULAR SIZE OF CONVEY PIPE USED.
* POWER TAP/DROP CABLE
ACS PART No. A0555195
(2) CORDS ARE REQUIRED
POWER SUPPLY

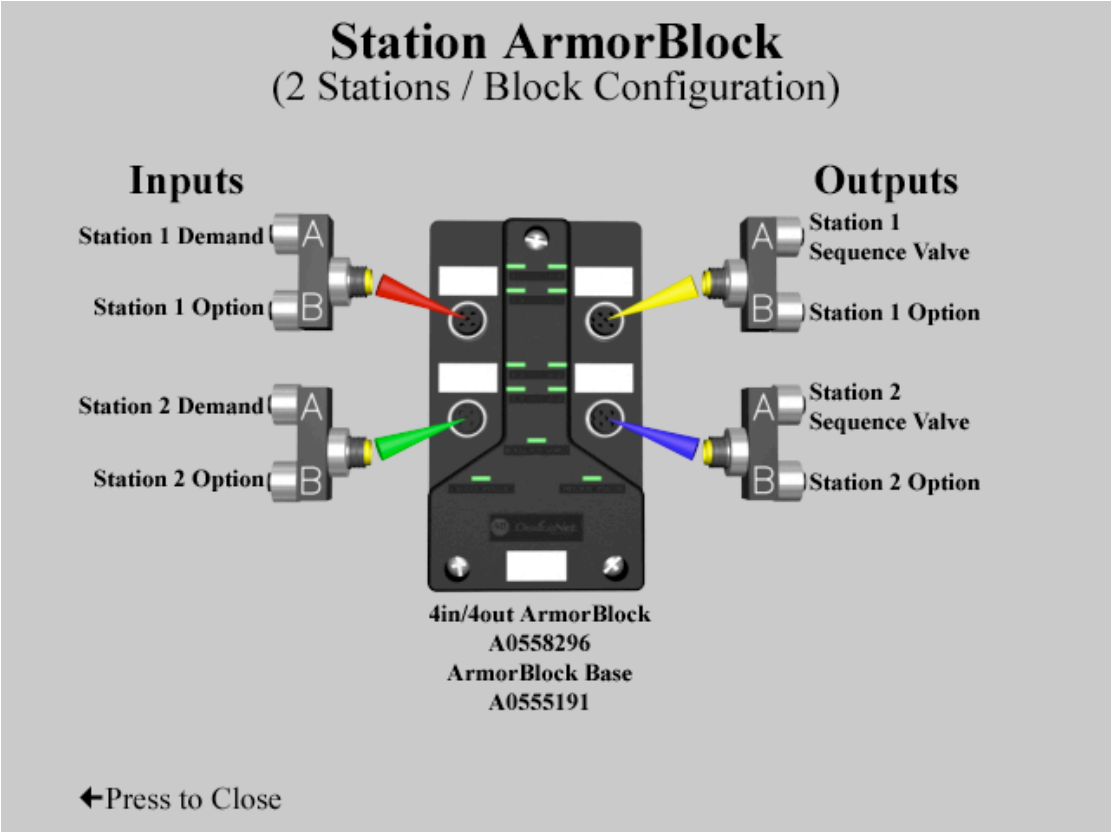
Connecting Vacuum Receivers to the Network

Make sure that all previous installation steps have been done first before starting this task.

To connect a vacuum receiver to the network:

1. Attach patch cord from vacuum hopper junction box (station demand) to appropriate input connector. See Figures 10 and 11 (connection is shown on first hopper on the block only for clarity.)
2. Dress the excess patch cord cable with cable ties so it does not interfere with operation and gives a pleasing appearance.

Figure 10: 10/80 4-Connector ArmorBlock Connections

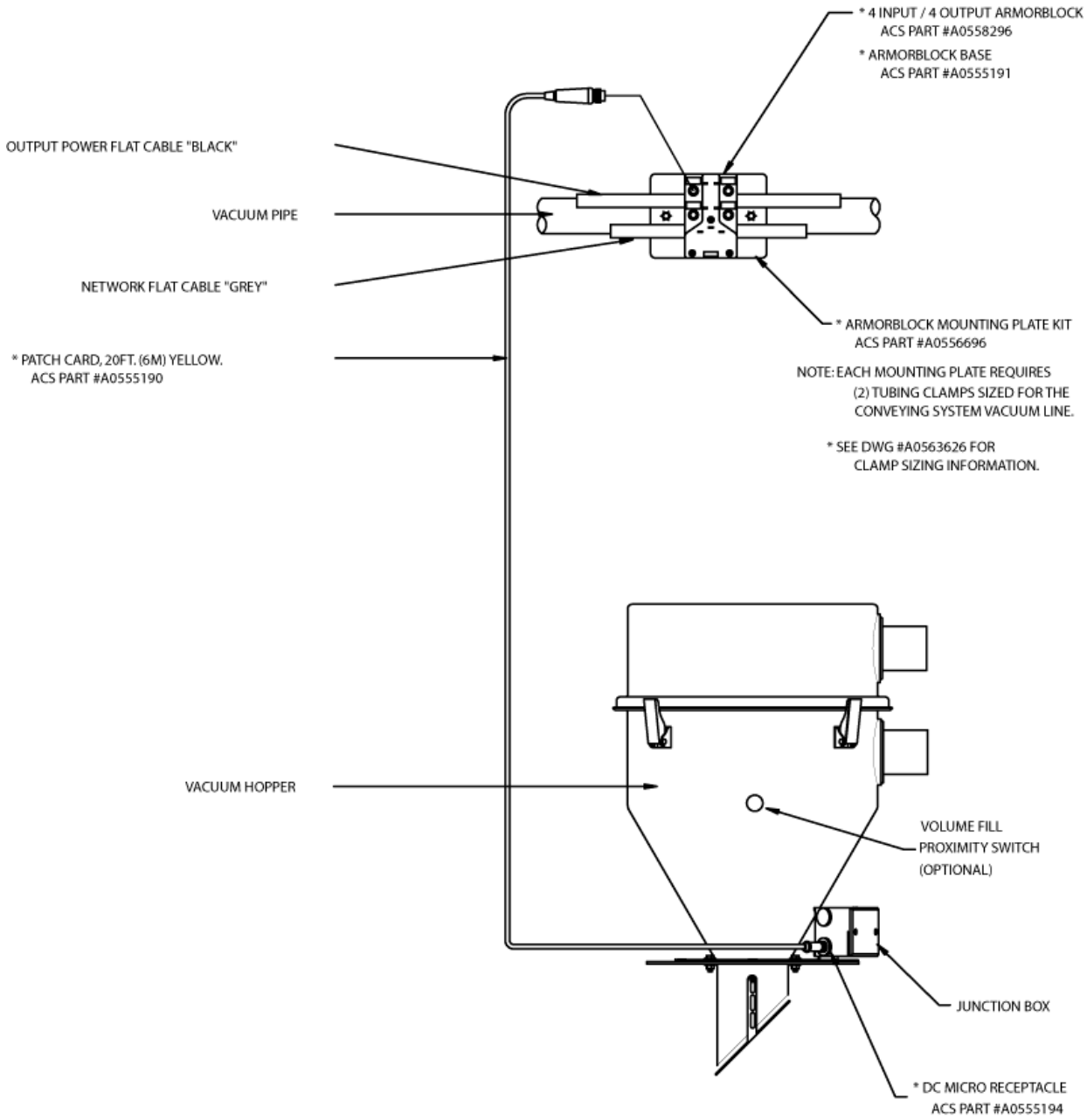


NOTICE

Note 1: The block shown is addressed 01 for the first (2) two hoppers. The block addressed 02 would have the connections for 3-4, etc.

Note 2: If a hopper does not have an optional input or optional output, the T-connector is not required. Connect the patchcord directly to the connector on the ArmorBlock.

Figure 11: Proper Vacuum Receiver Connections



Connecting Vacuum Pumps and Filter Chambers to the Network

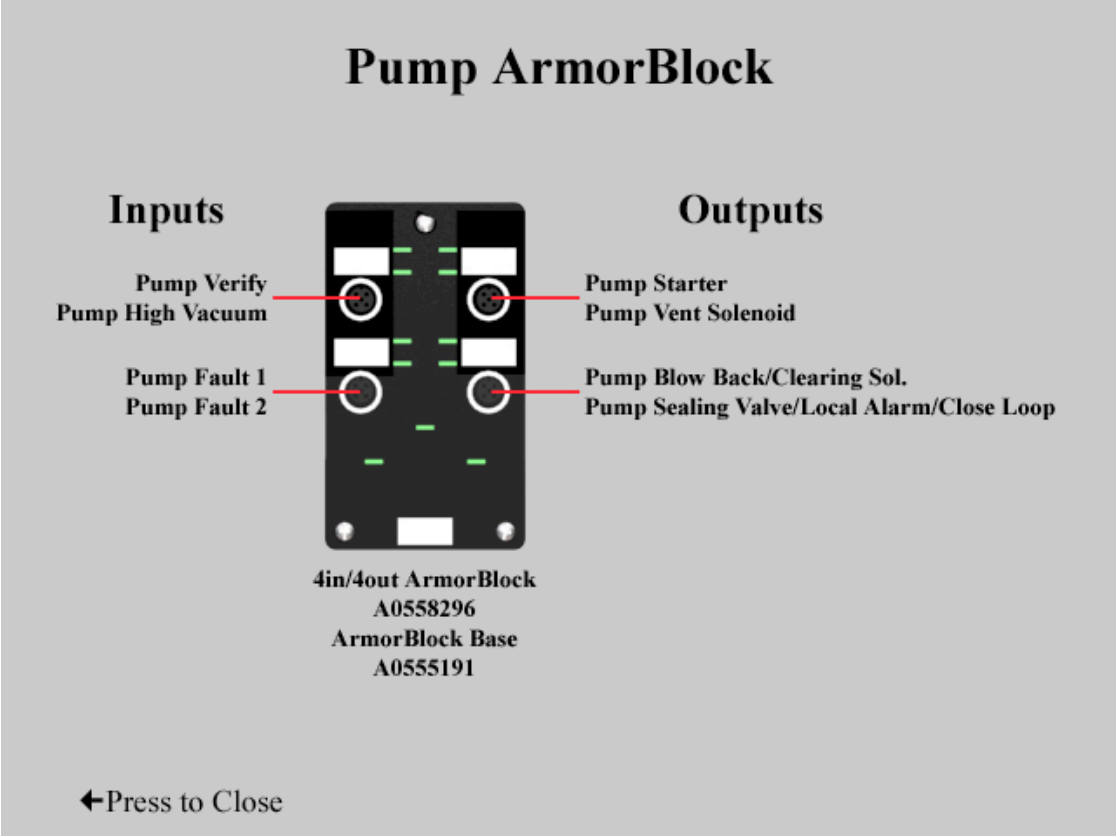
Connecting Vacuum Pumps

Make sure that all previous installation steps have been done first before starting this task.

To connect a vacuum pump to the network:

1. Attach patchcords from vacuum pump junction boxes to the appropriate ArmorBlock connectors. See Figures 12, 13, and 14.

Figure 12: Vacuum Pump ArmorBlock Connections



NOTICE

Note 1: ***The block shown is addressed 41, for the first pumps. The block addressed 42 would have connectors for pumps etc.***

Note 2: ***If a pump does not have "Pump Fault #2" or a local pump alarm light, the T connector is not required. Connect the patchcord directly to the connector on the ArmorBlock.***

Figure 13: Proper Vacuum Pump Connections, Standard XPD/XPC Pumps

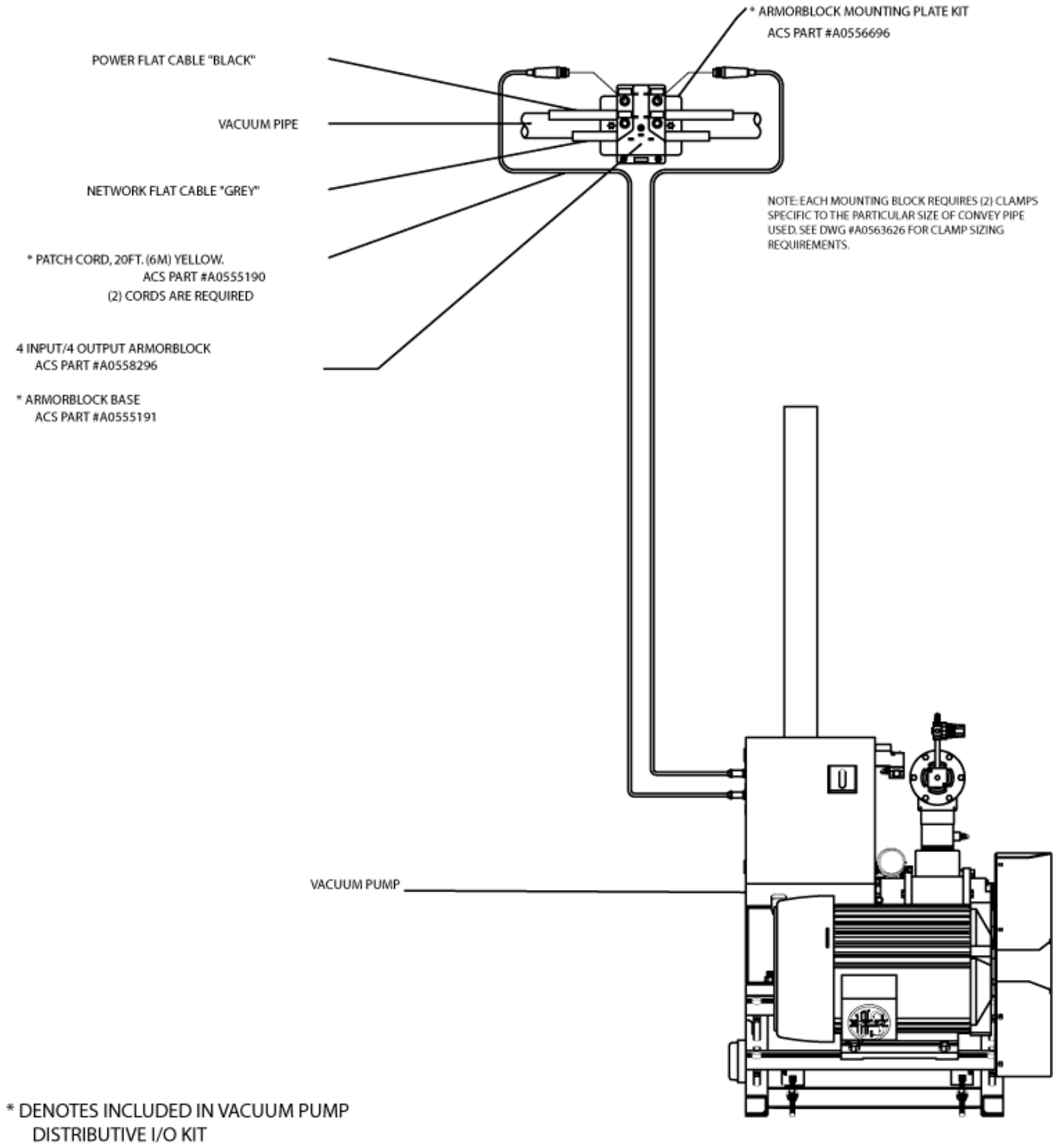
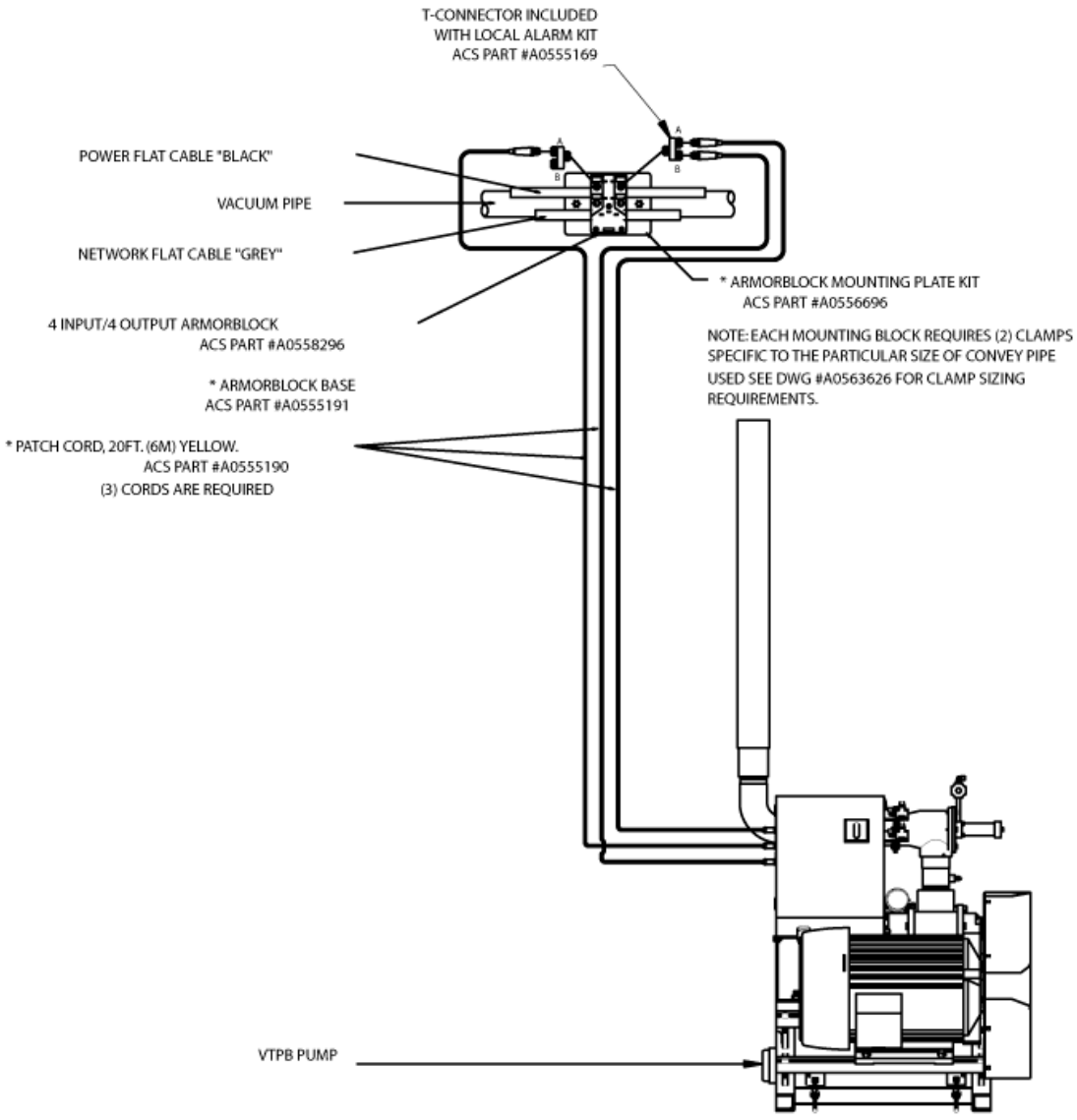

* ARMORBLOCK MOUNTING PLATE KIT
ACS PART #A0556696
POWER FLAT CABLE "BLACK"
VACUUM PIPE
NETWORK FLAT CABLE "GREY"
* PATCH CORD, 20FT. (6M) YELLOW.
ACS PART #A0555190
(2) CORDS ARE REQUIRED
4 INPUT/4 OUTPUT ARMORBLOCK
ACS PART #A0558296
* ARMORBLOCK BASE
ACS PART #A0555191
NOTE: EACH MOUNTING BLOCK REQUIRES (2) CLAMPS SPECIFIC TO THE PARTICULAR SIZE OF CONVEY PIPE USED. SEE DWG #A0563626 FOR CLAMP SIZING REQUIREMENTS.
VACUUM PUMP
* DENOTES INCLUDED IN VACUUM PUMP
DISTRIBUTIVE I/O KIT

Figure 14: Proper Vacuum Pump Connections, XPDB Pump


T-CONNECTOR INCLUDED
WITH LOCAL ALARM KIT
ACS PART #A0555169
POWER FLAT CABLE "BLACK"
VACUUM PIPE
NETWORK FLAT CABLE "GREY"
4 INPUT/4 OUTPUT ARMORBLOCK
ACS PART #A0558296
* ARMORBLOCK BASE
ACS PART #A0555191
* PATCH CORD, 20FT. (6M) YELLOW.
ACS PART #A0555190
(3) CORDS ARE REQUIRED
* ARMORBLOCK MOUNTING PLATE KIT
ACS PART #A0556696
NOTE: EACH MOUNTING BLOCK REQUIRES (2) CLAMPS SPECIFIC TO THE PARTICULAR SIZE OF CONVEY PIPE USED SEE DWG #A0563626 FOR CLAMP SIZING REQUIREMENTS.
VTPB PUMP

* DENOTES INCLUDED IN DISTRIBUTIVE I/O KIT.

Connecting Filter Chambers

Make sure that all previous installation steps have been done first before starting this task.

To connect a filter chamber to the network:

1. Attach patch cords from vacuum pump filter chamber to the appropriate connector(s). See Figures 12, 15, and 16 (connection is shown on first pump on the block only for clarity.)

Figure 15: Proper Filter Chamber Connections, Blowback

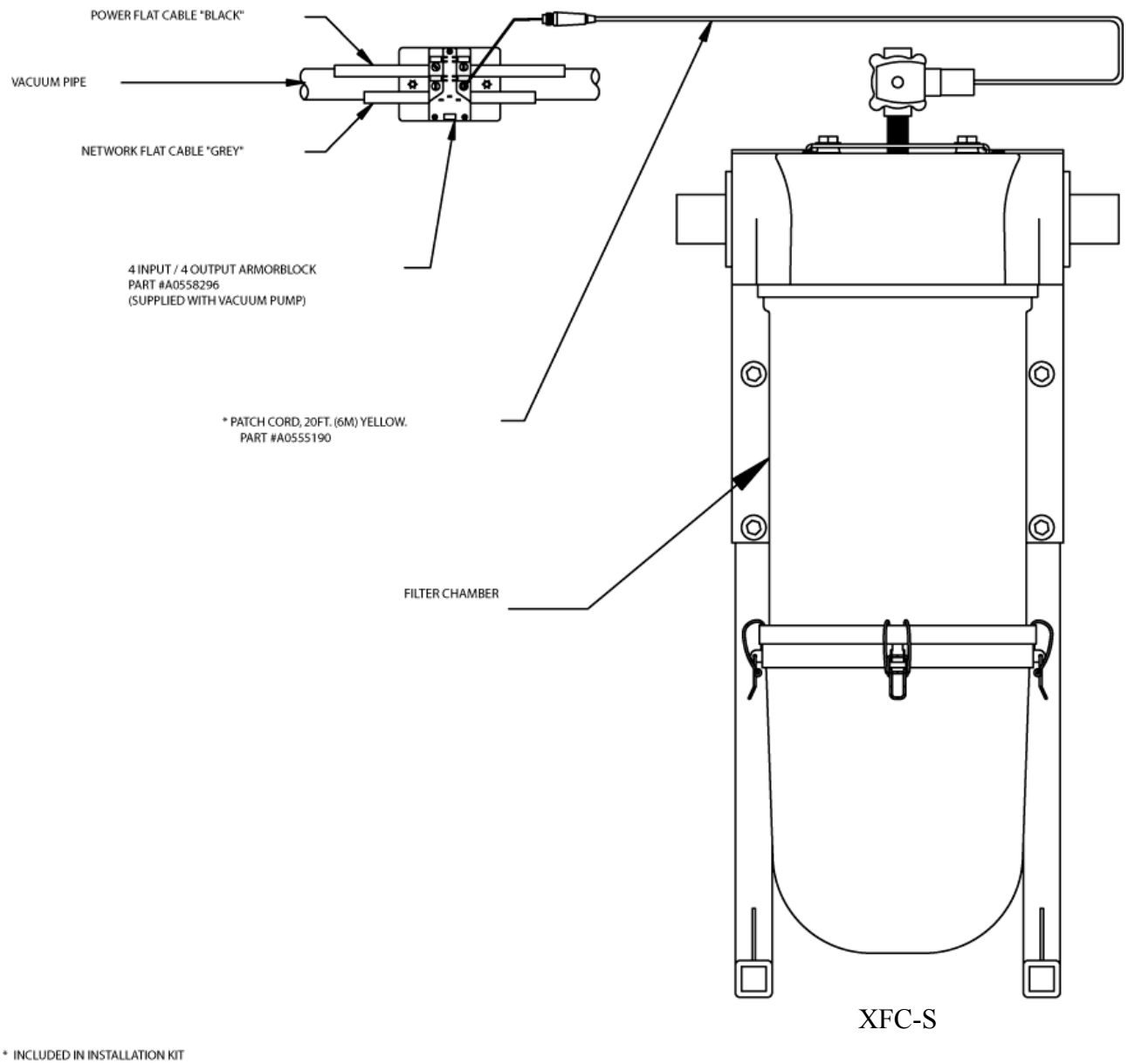
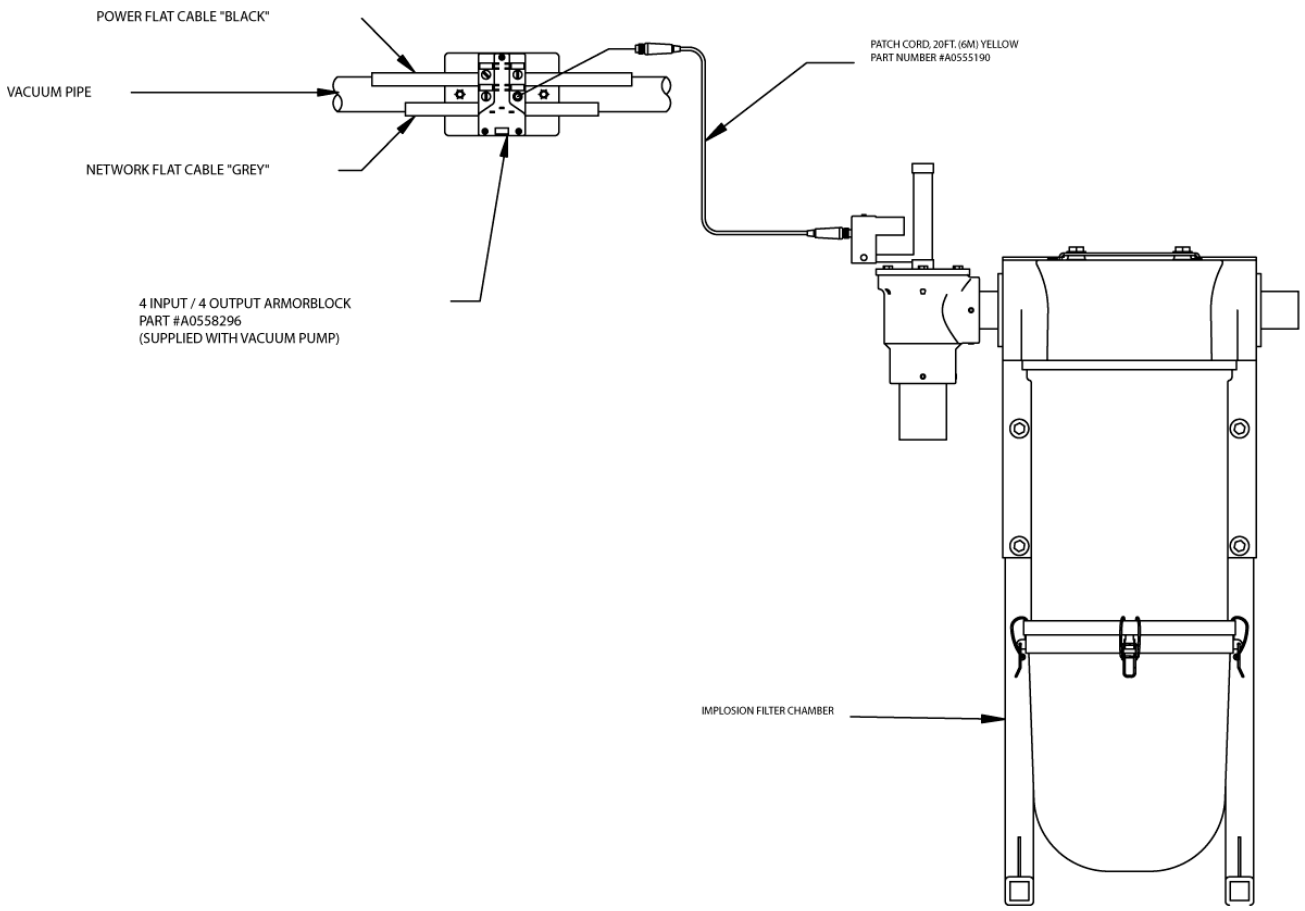


Figure 16: Proper Filter Chamber Connections, Implosion Type



NOTICE ***Retain the terminal caps from the ArmorBlock. They may be used later.***

2. Dress the excess patch cord cables with cable ties so they do not interfere with operation and to give a pleasing appearance.

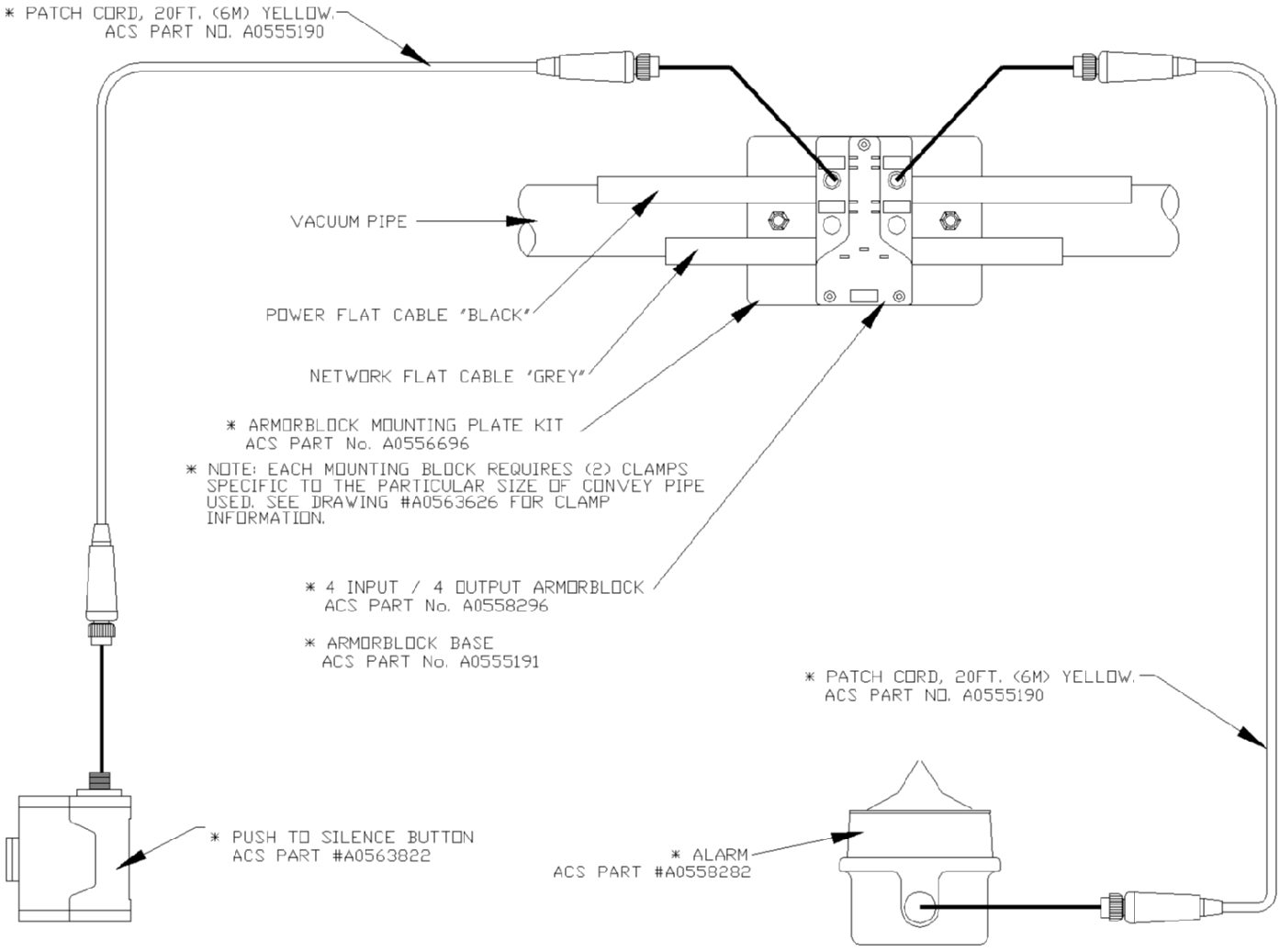
Connecting Central Alarms to the Network

Make sure that all previous installation steps have been done first before starting this task. First, **determine where the best location for central alarms should be**, and install the alarm module(s) there. You'll use two yellow patch cords to connect.

To connect an alarm module to the network:

1. Attach one connector of the first yellow patch cord to the terminal on the alarm module. Tighten the cord grip ring until snug.
2. Attach the other connector to the **upper right** terminal of the ArmorBlock. Tighten the cord grip ring until snug.

Figure 17: Proper Central Alarm Connections


* PATCH CORD, 20FT. (6M) YELLOW.
ACS PART NO. A0555190
VACUUM PIPE
POWER FLAT CABLE "BLACK"
NETWORK FLAT CABLE "GREY"
* ARMORBLOCK MOUNTING PLATE KIT
ACS PART No. A0556696
* NOTE: EACH MOUNTING BLOCK REQUIRES (2) CLAMPS SPECIFIC TO THE PARTICULAR SIZE OF CONVEY PIPE USED. SEE DRAWING #A0563626 FOR CLAMP INFORMATION.
* 4 INPUT / 4 OUTPUT ARMORBLOCK
ACS PART No. A0558296
* ARMORBLOCK BASE
ACS PART No. A0555191
* PATCH CORD, 20FT. (6M) YELLOW.
ACS PART NO. A0555190
* PUSH TO SILENCE BUTTON
ACS PART #A0563822
* ALARM
ACS PART #A0558282

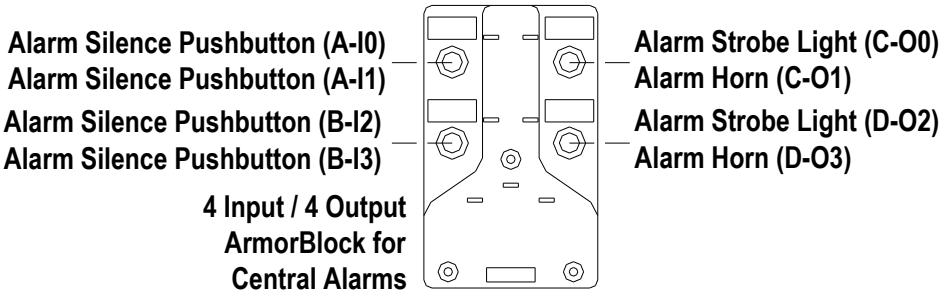
3. Attach one connector of a yellow patch cord to the terminal on the alarm silence switch module. Tighten the cord grip ring until snug.
4. Attach the other connector to the **upper left** terminal of the ArmorBlock. Tighten the cord grip ring until snug.

NOTICE

Retain the terminal caps from the ArmorBlock. They may be used later.

Note the following illustration for 4-connector central alarm ArmorBlocks:

Figure 18: 4-Connector ArmorBlock Connections for Central Alarms


Alarm Silence Pushbutton (A-I0)
Alarm Silence Pushbutton (A-I1)
Alarm Silence Pushbutton (B-I2)
Alarm Silence Pushbutton (B-I3)
4 Input / 4 Output ArmorBlock for Central Alarms
Alarm Strobe Light (C-O0)
Alarm Horn (C-O1)
Alarm Strobe Light (D-O2)
Alarm Horn (D-O3)

5. Dress the excess patch cord cables with cable ties so they do not interfere with operation and to give a pleasing appearance.

3-5 Setup

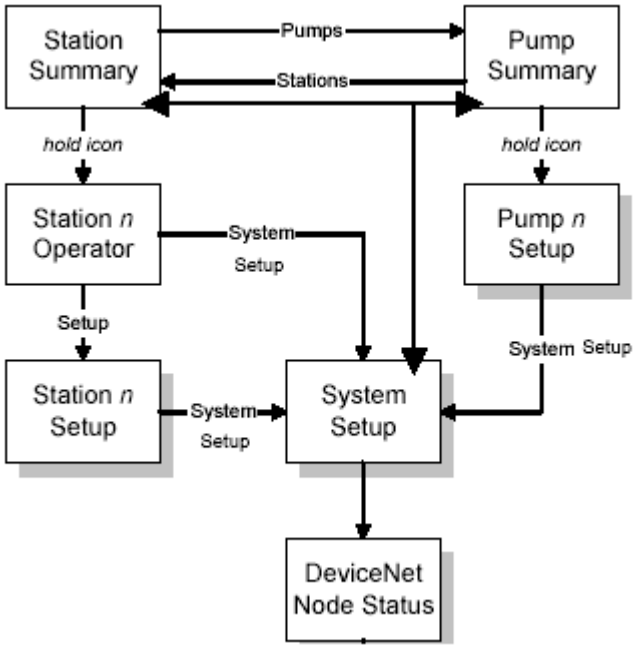
This section provides the procedures for configuring your 10-Pump, 80-Station Controller. Configuration of your controller includes setting the number of stations and pumps, setting variables such as convey time and blow-back interval, and setting up passwords. We recommend that you carry out these procedures in the order given here.

NOTICE

Before carrying out these procedures, install all equipment as described in this section and in the Mechanical Components manual.

Figure 19 below gives an overview of the basic flow between the menus used in setting up the system.

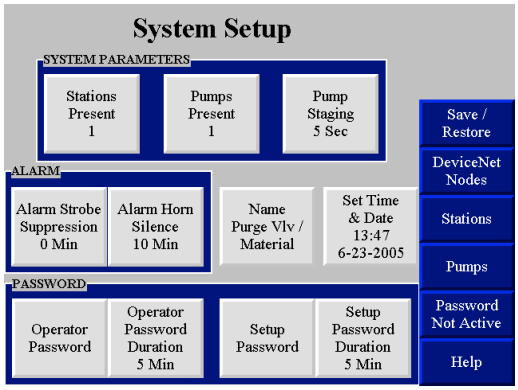
Figure 19: Basic Menu Flow for Setup



Setting the Number of Stations and the Number of Pumps

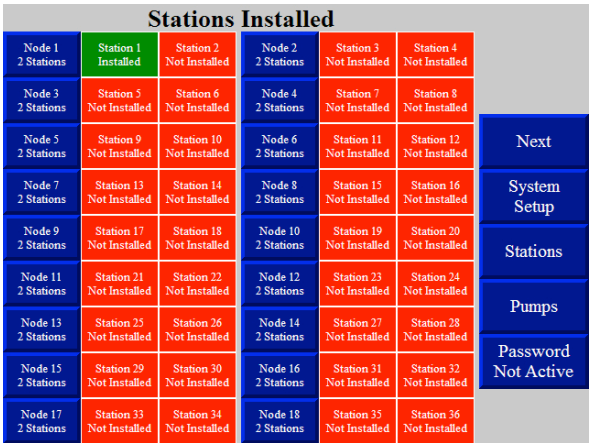
3. Touch **`System Setup`** at the Station Status (or Pump Status) screen.

   The System Setup screen appears:



NOTICE ***Touching `Help` in the lower right of this screen gives you a menu of online help for the choices in this screen.***

2. Touch **`Stations Present`** in the upper left of the System Setup screen.
3. This will take you to the Stations Installed screen.



A screen showing a list of stations appears. The stations that are not installed are red. The stations that are installed are green. Briefly touching the icon for a station toggles between not installed and installed. Briefly touching the icon for a node toggles the node's configuration between 2 stations per block and 1 station per block.

When configured for 2 stations per block, each of the stations on the block will have one optional input and one optional output. If more optional

equipment needs to be used with a station (for example if a station requires an RPV and a Slide Gate), the block should be configured for 1 station per block.

When configured for 1 station per block, the station on the block will have three optional inputs and three optional outputs. This will allow more optional equipment to be used with a single station than the 2 stations per block allows. Each station block configured in this manner will reduce the number of stations the control can support by one.

4. Press **System Setup** to return to the System Setup screen.
5. Touch **Pumps Present** in the upper part of the System Setup screen.
6. This will take you to the Pumps Installed screen.

   The screen shows a list of pumps. The pumps that are not installed are red. The pumps that are installed are green. Briefly touching the icon for a pump toggles between not installed and installed.
7. Press **System Setup** to return to the System Setup screen.
8. The new setting appears under **System Parameters** on the System Setup screen.

Setting the Date/Time

You can set the current date and time by going to the System Setup screen and pressing **Set Time & Date**.

1. To set the time, touch **Hour**. A keypad will pop up and you will be able to enter the current hour. The controller uses military time. You can repeat this process for the minutes by pressing **Minute**.
2. To set the date, touch Month. A keypad will pop up for you to enter the number of the current month (i.e. May = 5). You can repeat this process to set the current day and year by pressing **Day** and **Year**, as appropriate. Use ← to erase any mistakes. Use ↵ to enter the value.

   The keypad disappears and the new setting appears under **Set Time & Date**.

Naming Purge Valves and Materials

You can assign purge valves and materials names rather than keep them assigned by numbers. (You can name stations and pumps as well. Refer to the "Setting Up Stations" and "Setting Up Pumps" sections later in this chapter).

1. Go to the System Setup screen and touch **Name Purge Vlv/Material** and scroll through the list of purge valve/materials and find the one you want to rename.
2. Use the up and down arrows to select the purge valve/material you would like to name.
3. Select **Press to Change** at the bottom of the list.

   A keypad will pop up.

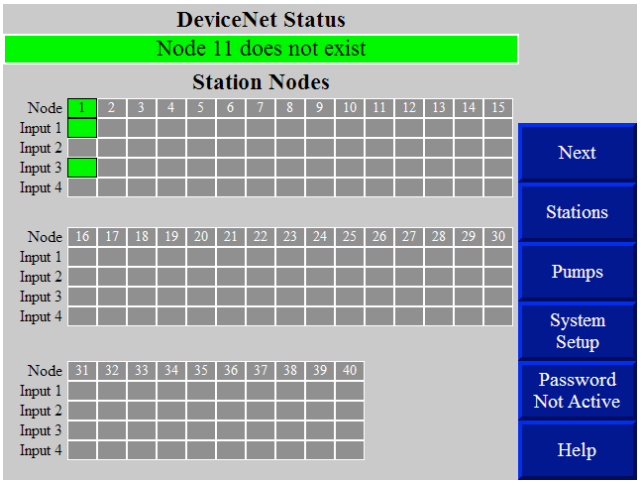
3. You can then type in a name of up to eight alpha-numeric characters. Make sure to choose different names, as the system does **not** recognize duplicate names. Use ← to erase any mistakes. Use ↵ to enter the value.

Checking Addressing and Wiring for System Components

Once you have set the number of stations and pumps as described previously, you should verify that the controller is communicating with all stations, pumps, and central alarms, and with the ArmorBlocks for all central purge valves. To do so:

1. At the System Setup screen, touch **`DeviceNet Nodes`** on the right side of the screen.

   The DeviceNet Status screen appears:



2. Check that the expected components are shown as present (green) and not present (grey). (Disregard any error messages.)

   For example, if you have 18 stations, boxes **`01`** through **`18`** in the **`Stations`** section should be green and boxes **`19`** through **`80`** should be grey. For central purge valves, you should see a green box for each ArmorBlock installed.

If the screen display is not as expected, either a component's ArmorBlock has an incorrect address or the ArmorBlock is not correctly wired to the network.

When you have verified that the controller is communicating with the other system components, you should verify that the inputs on all ArmorBlocks for stations and pumps are wired correctly and are working correctly. To do so:

Node numbers are stacked vertically as column headings in this screen.

3. Check that all inputs are on (green) or off (grey) as expected and that they switch on and off as required.

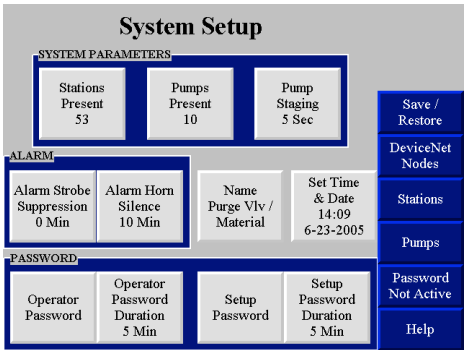
If any input does not operate as expected, check the wiring on the ArmorBlock. If this does not solve the problem, phone the Service Department for assistance.

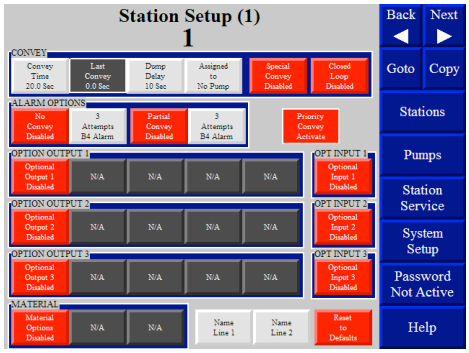
Setting Up Alarm Silences

When an alarm occurs, a horn sounds and a strobe light flashes at each installed central alarm. An alarm window will also appear in the center of the operator interface screen(s). The window will display a description of the alarm, the time and date it occurred, and a **`Push To Silence`** button. Touching this button silences the horn(s) and turns off the light(s) for configurable periods of time. You can set different lengths of time for keeping the horn silent and keeping the light turned off. If a new alarm occurs, the horn sounds and the light turns on again.

To set the lengths of time for suppressing the alarm strobe and horn:

1. Go to the System Setup screen. To reach this screen from any other screen, touch **`System Setup`** on the right-hand side of the screen





1 station per Block Configuration

The current settings are displayed under **`Alarm Strobe Suppression`** and **`Alarm Horn Silence`**. When a station node is configured for the default 2 stations per block (see ***Setting up the System*** on page 37), one option input and one option output per station is available. When a station node is configured for 1 station per block, three option inputs and three option outputs are available for the station.

2. Touch Alarm Strobe Suppression or Alarm Horn Silence, as appropriate.

   A keypad pops up, with the current setting.

3. Enter the number of minutes you want the horn or light to be turned off once the alarm silence button is pushed (range: 0–99). If the alarm condition is not corrected or the defective device is not disabled through the touch screen, the audible and visual alarms will reoccur after the times expire. If you want the light (or the horn) to stay on as long as the alarm persists, simply press 0. If you want the horn (or the light) to stay off until a new alarm occurs, use 99 for its entry. Use ← to erase any mistakes. Use ↵ to enter the value.

   The keypad disappears and the new setting appears under **`Alarm Strobe Suppression`** or **`Alarm Horn Silence`**.

4. Repeat for the other device (strobe or horn) as appropriate.

Setting Up Pump Staging

To avoid an excessive power demand at your facility when the conveying system starts up, you can stagger the times at which pumps start. Whenever a demand would cause two pumps to start simultaneously, your choice for pump staging sets the delay between the start of one pump and the start of the next. The factory default is a delay of five seconds. You need to change this setting only if this delay is too long or too short for your facility.

To set the delay between the start of one pump and the next:

1. Go to the System Setup screen if needed.

   The current delay is displayed under **`Pump Staging`**.

2. Touch Pump Staging.

   A keypad pops up, with the current setting.

3. Enter the number of seconds (range: 0–99). Use ← to erase any mistakes. Use ↵ to enter the value.

   The keypad disappears and the new setting appears under **`Pump Staging`**.

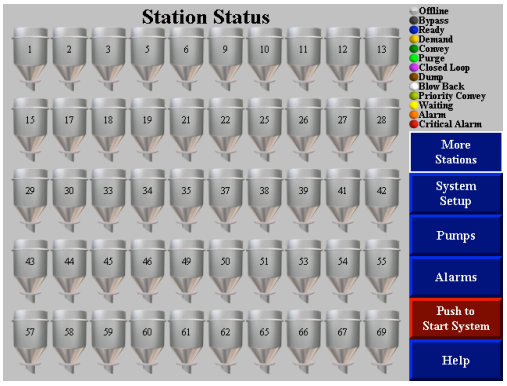
Setting Up Stations

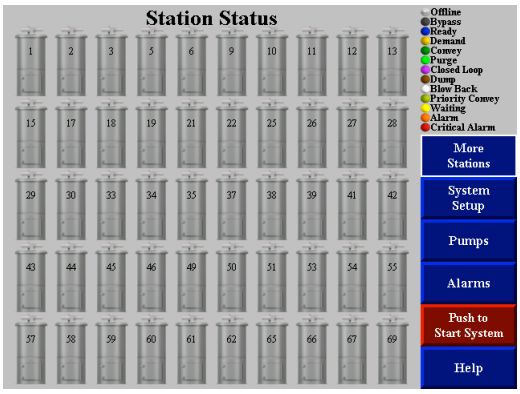
Before starting the system, you must define several settings for each station, such as which pump conveys material to it and whether the station has a slide gate. This section first discusses how to use the controller's menu system to configure stations. The table on pp. 73–77 discusses the individual choices.

Setting Up a Single Station

1. Go to the Station Status screen if needed.

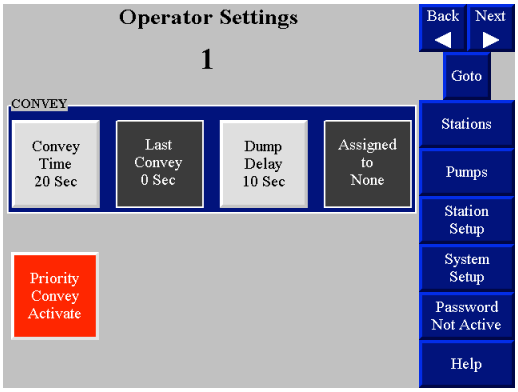
   To reach this screen from any other screen, touch **`Stations`** on the right-hand side of the screen. The Station Status screen appears. Depending on which model you have, your screen will appear as one of the following:





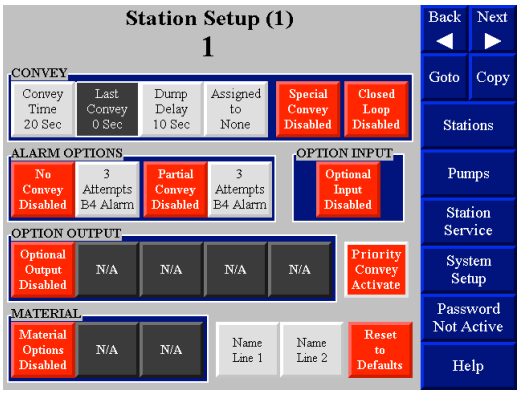
2. Touch the icon for the station you want to set up, and hold it for several seconds.

   The Station *n* Operator Settings screen for the selected station appears:



Touch **`Station Setup`** at the Station *n* Operator Settings screen.

The Station *n* Setup screen appears:



3. Touching **`Help`** in the lower right of this screen gives you a menu of online help for the choices in this screen.

4. Adjust settings as required. Touching any box that appears in red (for "disabled") toggles it to green (for "enabled"). Many boxes have more than one embedded state. Touching any box that appears in light gray gives you a keypad to enter a new value.

   Keypad entry works as with many ATM machines: the first digit you enter initially appears in the rightmost column and moves to the left as you enter more digits. Use ← to erase any mistakes. Use ↵ to enter the value. The keypad disappears and the Station *n* Setup screen shows the new value in the selected gray box.

   Touching **`Reset To Defaults`** in the lower right of the screen changes all settings for this station back to their factory defaults.

   See pp. 73–77 for details on the options and their default settings.

4. As appropriate:

   a. Copy this station's settings to one or more other stations, as described below

   - or -

   b. Touch **`Back`** ◀ to go to the Station *n*-1 Setup screen

   - or -

   c. Touch **`Next`** ▶ to go to the Station *n*+1 Setup screen

   - or -

   d. Touch **`Goto`** and enter a station number to go to that station's setup screen

5. To save or restore settings, go to the System Setup screen and touch **`Save/Restore`** on the right side of the screen.

Naming Stations

To name a station, go to the Station Status screen. Touch the icon for the station you want to name and hold it for several seconds.

The Station n Operator Settings screen for the selected station appears.

Touch **`Station Setup`** at the Station *n* Operator Settings screen.

The Station *n* Setup screen appears.

1. Press **Name Line 1** at the bottom of the Station *n* Setup screen.

   A keypad will pop up.

2. You can enter a name of up to four (4) alpha-numeric characters. If you would like to enter a longer name, you can go back to the Station *n* Setup screen and press **Name Line 2** to repeat the process. Using **Name Line 2** will allow you to enter up to four (4) more alpha-numeric characters, for a total of eight (8) characters. The characters will appear as two four-digit names on two separate lines.

   Use ← to erase any mistakes. Use ↲ to enter the value.

NOTICE

Make sure to choose different names, as the system does not recognize duplicate names.

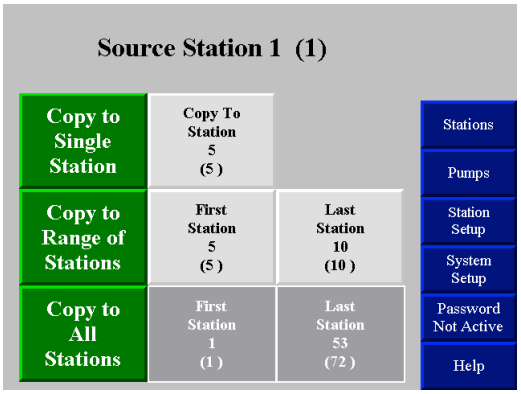
3. You can scroll through the stations by scrolling through **Back** and **Next** at the top of the screen.

Copying Settings from One Station to Others

If other stations at your facility will use the same settings as a station you have already set up, you can copy the settings from this station to the others. To do so:

1. At the Station *n* Setup screen (for the station you want to copy *from*), touch **Copy** in the screen's upper right.

   The Station Copy screen appears, showing the station number for the station you are copying from:



2. Follow the directions on the following pages to copy settings to one other station, a range of stations, or all stations.

To copy the selected station's settings to one other station

1. Touch the gray **Copy to Station** button next to the green button labeled **Copy To Single Station**.

   The keypad pops up.

2. Enter the station number for the station you are copying to. Use ← to erase any mistakes. Use ↲ to enter the value.

The keypad disappears and the Station Copy screen shows the station number you entered under **Copy to Station**.

3. Touch the green **Copy to Single Station** button.

   "**Copy Complete**" briefly appears at the top of the screen.

4. As appropriate, either continue copying to other stations, or touch **Station Setup** to go back to the Station *n* Setup screen.

To copy the selected station's settings to a *range* of other stations

1. Touch **First Station** button next to the green button labeled "Copy to Range of Stations."

   The keypad pops up.

2. Enter the station number for the hopper at the lower end of the range you are copying to. Use ← to erase any mistakes. Use ↵ to enter the value.

   The keypad disappears and the Station Copy screen shows the station number you entered under **First Station**.

3. Touch **Last Station** button next to the light grey button labeled **First Station**.

   The keypad pops up.

4. Enter the station number for the hopper at the upper end of the range you are copying to. Use ← to erase any mistakes. Use ↵ to enter the value.

   The keypad disappears and the Station Copy screen shows the station number you entered under **Last Station**.

5. Touch the green Copy To Range of Stations button.

   "**Copy Complete**" briefly appears at the top of the screen.

6. As appropriate, either continue copying to other stations, or touch **Station Setup** to go back to the Station *n* Setup screen.

To copy the current station's settings to *all* other stations

1. Touch the green **Copy To All Stations** button.

   "**Copy Complete**" briefly appears at the top of the screen.

2. Touch **Station Setup** to go back to the Station *n* Setup screen.

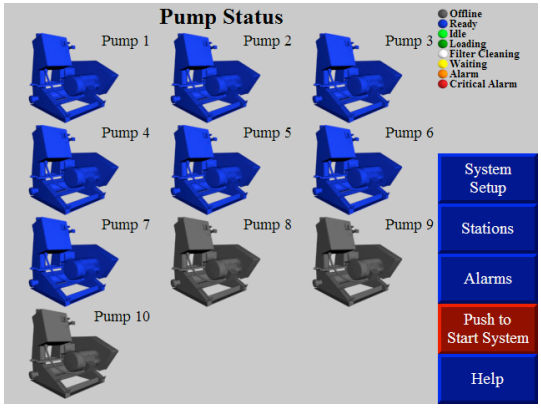
Setting Up Pumps

Before starting the system, you must define several settings for each pump, such as how quickly to shut it down when it is not in use and whether the pump has a local alarm. This section first discusses how to use the controller's menu system to configure pumps. The table on page 81 discusses the individual choices.

Setting Up a Single Pump

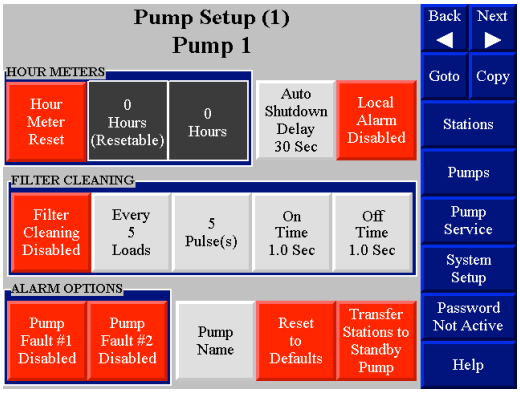
1. Go to the Pump Status screen.

   To reach this screen from any other screen, touch **`Pumps`** on the right side of the screen. The Pump Status screen appears:



2. Touch the icon for the pump you want to set up, and hold it for several seconds.

   The Pump *n* Setup screen appears:



3. Touching **`Help`** in the lower right of this screen gives you a menu of online help for the choices in this screen.

4. Adjust settings as required. Touching any box that appears in red (for "disabled") toggles it to green (for "enabled"), and vice versa. Touching any box that appears in light gray gives you a keypad to enter a new value.

   Keypad entry works as with many ATM machines: the first digit you enter initially appears in the rightmost column and moves to the left as you enter

more digits. Use ← to erase any mistakes. Use ↲ to enter the value. The keypad disappears and the Pump *n* Setup screen shows the new value in the selected gray box.

See page 64 for details on the options and their default settings.

5. As appropriate:

   a. Copy this pump's settings to one or more other pumps, as described below

   —or—

   b. Touch **`Back`** ◀ to go to the Pump *n*-1 Setup screen

   —or—

   c. Touch **`Next`** ▶ to go to the Pump *n*+1 Setup screen

   —or—

   d. Touch **`Goto`** and enter a pump number to go to that pump's setup screen

5. To save or restore settings, go to the System Setup screen and touch **`Save/Restore`** on the right side of the screen.

Naming Pumps

To name a station, go to the Pump Status screen. Touch the icon for the pump you want to name and hold it for several seconds.

The Pump n Operator Settings screen for the selected pump appears.

Touch **`Pump Setup`** at the Pump *n* Operator Settings screen.

The Pump *n* Setup screen appears.

3. Press **`Pump Name`** at the bottom of the Pump *n* Setup screen.

A keypad will pop up.

6. You can enter a name of up to eight (8) alpha-numeric characters. Use ← to erase any mistakes. Use ↲ to enter the value.

NOTICE

Make sure to choose different names, as the system does not recognize duplicate names.

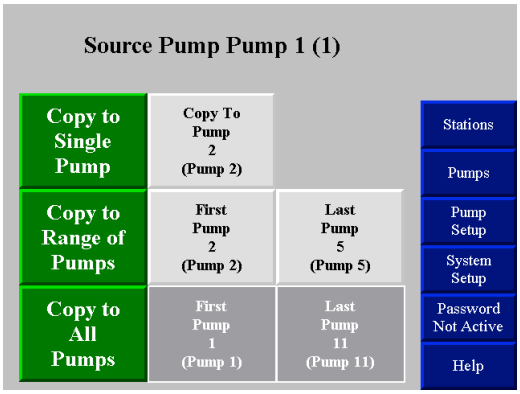
6. You can scroll through the pumps by scrolling through **`Back`** and **`Next`** at the top of the screen.

Copying Settings from One Pump to Others

If other pumps at your facility will use the same settings as a pump you have already set up, you can copy the settings from this pump to the others. The station name will not be copied. To copy settings from one pump to others:

1. At the Pump *n* Setup screen (for the pump you want to copy *from*), touch **`Copy`** in the screen's upper right.

   The Pump Copy screen appears, showing the pump number for the pump you are copying from:



2. Follow the directions below to copy settings to one other pump, a range of pumps, or all pumps.

To copy the selected pump's settings to *one* other pump

1. Touch the gray **`Copy to Pump`** button next to the green **`Copy To Single Pump`** button.

   The keypad pops up.

2. Enter the pump number for the pump you are copying to. Use ← to erase any mistakes. Use ↲ to enter the value.

   The keypad disappears and the Pump Copy screen shows the pump number you entered under **`Copy to Pump`**.

3. Touch the green **`Copy To Single Pump`** button.

   "**`Copy Complete`**" briefly appears at the top of the screen.

4. As appropriate, either continue copying to other pumps, or touch **`Pump Setup`** to go back to the Pump *n* Setup screen.

To copy the selected pump's settings to a *range* of other pumps

1. Touch **`First Pump`** next to the green button labeled **`Copy To Range of Pumps`** button.

   The keypad pops up.

2. Enter the number for the pump at the lower end of the range you are copying to. Use ← to erase any mistakes. Use ↲ to enter the value.

   The keypad disappears and the Pump Copy screen shows the pump number you entered under **`First Pump`**.

3. Touch **`Last Pump`** next to the light grey button labeled **`First Pump`**.

   The keypad pops up.

4. Enter the number for the pump at the upper end of the range you are copying to. Use ← to erase any mistakes. Use ↲ to enter the value.

   The keypad disappears and the Pump Copy screen shows the pump number you entered under **`Last Pump`**.

5. Touch the green **`Copy`** button labeled **`Copy To Range of Pumps`**.

"**Copy Complete**" briefly appears at the top of the screen.

6. As appropriate, either continue copying to other pumps, or touch **Pump Setup** to go back to the Pump *n* Setup screen.

To copy the current pump's settings to *all* other pumps

1. Touch the green **Copy To All Pumps** button.

   "**Copy Complete**" briefly appears at the top of the screen.

2. Touch **Pump Setup** to go back to the Pump *n* Setup screen.

Finishing Setup: Setting Up Passwords

You can set up passwords for two levels of security: for operators and for setup personnel. The controller comes from the factory with neither password set. This allows every user access to all functions.

Setup Password. If you define a password for setup personnel, then most settings can be changed only after entering the password. The password will be required to display the following screens:

- System Setup (to review and change system-wide settings and go to the network status screens)
- Station Setup (to review and change settings for all station options)
- Pump Setup (to review and change settings for all pump options)

Operator Password. If you define a password for operators, then a password will be required to carry out *any* function (other than reviewing station and pump status, silencing alarms, reviewing the alarm log, and looking at help screens). Entering the operator's password will give the user access to the functions at the following screens:

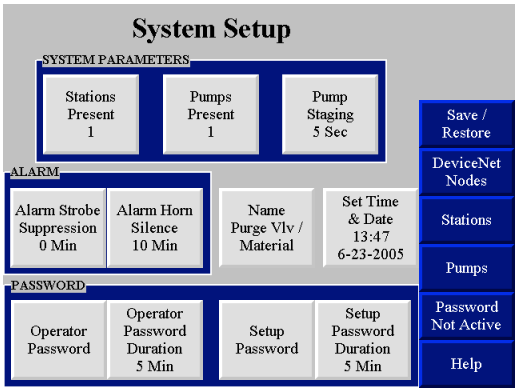
- Station Status (to enable or disable a station, and start or stop system)
- Pump Status (to enable or disable a pump, and start or stop system)
- Station *n* Operator (to adjust a station's convey time and dump delay, activate priority convey, and review the station's last convey time and pump assignment; depending on the options installed, the screen may also enable the operator to adjust the mixture percentage for a remote proportioning valve, change the purge time and purge valve, and set the intended material line for manifold sharing)

Entering the setup password will give the user access to all functions.

To set (or remove) password protections:

1. Press **`System Setup`** on the right side of the screen to go to the System Setup screen if needed.

The System Setup screen appears:



The current passwords are displayed under **Operator Password** and **Setup Password**. No value means that no password is required.

2. Touch Operator Password or Setup Password, as appropriate.

   A keypad pops up.

3. Enter up to eight (8) alpha-numeric characters. If you want to remove the password protection, simply leave the entry blank. Use ← to erase any mistakes. Use ↵ to enter the value.

   The keypad disappears and the new setting appears under **Operator** (or **Setup**) **Password**. In addition, if you have added a password, a new button appears on the screen, labeled **Log Off Operator**.

If desired, you can also change the duration for which a password remains effective. During operation, the password-protected screens are available either until the user logs off or until this time elapses, whichever comes first. This feature prevents the password from remaining active if a user forgets to log off.

4. The password timer starts when the user logs on. It expires even if the user is actively using the screens when the chosen time is up. If the timer expires, the system goes to the Station Status screen. Your password duration should be long enough to allow authorized users to complete their tasks but short enough to provide adequate protection against tampering.

To change the duration of a password:

1. At the System Setup screen, touch **Operator Password Duration** or **Setup Password Duration**, as appropriate.

   A keypad pops up, with an entry of the current setting.

2. Enter the number of minutes (range: 2–99). Use ← to erase any mistakes. Use ↵ to enter the value.

   The keypad disappears and the new setting appears under **Operator** (or **Setup**) **Password Duration**.

Save/Restore Settings

To save settings, go to the System Setup screen and touch **Save/Restore** on the right side of the screen. Touch **Save Settings**. When the settings have been saved, the controller will display "Save Complete." The date and time will appear under "Restore Settings."

To restore old settings, touch **Save/Restore**. Touch **Restore Settings**. The controller will display the most recent date and time that the settings were restored.

3-6 Initial Startup

Once you have finished all the setup described above, you are ready to start the system. To do so:

1. At any screen, touch **Stations** on the right-hand side of the screen.

   The Station Status screen appears.

2. For each station that you want to use, briefly touch its icon.

   The icon turns blue, indicating that the station is ready or yellow, indicating that the station needs material.

3. Touch **Pumps**.

   The Pump Status screen appears.

4. For each pump that you want to use, briefly touch its icon.

   The icon turns blue, indicating that the pump is ready.

5. Touch **Push to Start System** in the lower right-hand corner of the screen.

   The system starts. If any alarm messages appear on the top of the screen, see Section 3-5 on page 71.

Chapter 4: Operation

4-1 Overview

Your 10/80 controller electrically controls valves and solenoids to convey material from a central location to individual stations as needed. The controller senses demands for material at the stations and responds to the demands in a timely fashion.

This section gives the procedures for using your controller, and it covers tasks that can be carried out with no password or with an operator's password. The section is divided into four sub-sections:

- Starting and stopping the system
- Basic tasks: tasks normally carried out by a station operator
- Advanced tasks: tasks normally carried out by setup personnel
- Alarms: silencing

Before you carry out any of the procedures in this chapter, the system must be set up as described in the previous chapter.

4-2 Starting and Stopping the System

In an emergency, you can use the power switch on the upper right-hand side of the controller cabinet if a password is required to stop the system and you do not know the password.

NOTICE

Normally, all the stations and pumps you want to use should be enabled before you start the system. When the system is stopped, icons for enabled stations are blue when full and dark yellow when they need material. Icons for enabled pumps are blue. Enabling stations and pumps is described on p. 63.

A button to start and stop the system is located in the lower right of the Station Status, Pump Status, and Alarm Log screens. When the system is off, the button is red and reads **`Push to Start System`**. When the system is on, the button is green and reads **`Push to Stop System`**. Depending on the setup at your facility, the system may prompt for a password when you touch this button.

If conveying does not begin when you start the system, check to make sure that all needed pumps are enabled. If they are, check that all needed stations are enabled.

4-3 Basic Tasks

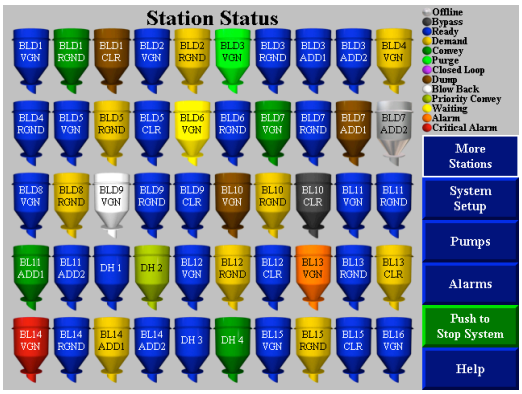
This section covers tasks that can be carried out with no password or with an operator's password.

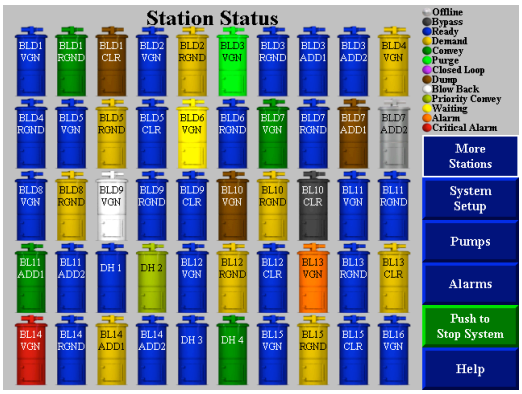
Reviewing Station Status

The starting point for all operations is the Station Status screen. To reach this screen from any other screen:

1. Touch **`Stations.`**

   The Station Status screen appears. Depending on which model you have, your screen will appear as one of the following:





The status of each station is color-coded, as summarized in the upper right of the screen.

You can see an explanation of each status by using the online help. To do so from this screen:

2. Touch anywhere in the rectangle in the upper right of the screen or the **`Help`** button on the lower right side of the screen.

   The Help Menu appears.

3. In the section of the Help Menu labeled **`Screen Symbols/Colors`**, touch **`Station`**.

   The Station Symbols help screen appears, explaining the status represented by each color.

4. When you are finished reviewing the information, touch **`Stations`** (or **`Pumps`**).

   The Station Status (or Pump Status) screen appears.

The following table explains the status represented by each color at the Station Status screen.

Color	Label	Description
Silver	Offline	Station is not enabled. The controller ignores any demands or alarms.
Blue	Ready	Station is enabled and idle (full).
Dark Yellow	Demand	Station requires material.
Light Green	Purging	The material line is being purged of material.
Brown	Dumping	The station is dumping material into its receiver.
White	Blow Back	Station's air filter is being cleaned by blowing compressed air backward through it.
Dark Grey	Bypass	Bypass switch at the station has been turned on, disabling the station.
Medium Green	Priority Convey	Station is in priority convey mode. Its pump will be temporarily dedicated to filling it as soon as possible.
Orange	Alarm	Station is in alarm.
Red	Critical	Station is in critical alarm. The controller has disabled the station until the alarm is cleared.
Purple	Closed Loop	Station is in closed loop convey.
Light Yellow	Waiting	Station is waiting for material to become available.
Dark Green	Convey	Station is being loaded.

Additional basic information about each station (convey time, dump delay, pump assignment, and, if enabled, RPV setting, purge settings, etc.) is available at the Station *n* Operator screen. See page 64 for details.

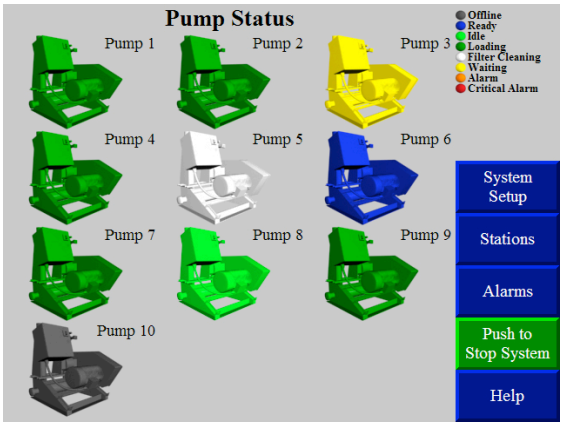
Detailed configuration settings for each station are available at the Station *n* Setup screen. See page 39 for details.

Reviewing Pump Status

The Pump Status screen is the counterpart of the Station Status screen. To reach the Pump Status screen from any other screen:

1. Touch **`Pumps`**.

The Pump Status screen appears:



The status of each pump is color-coded, as summarized in the upper right of the screen.

You can see a more detailed explanation of each status by using the online help. To do so from this screen:

2. Touch anywhere in the rectangle in the upper right of the screen or the **Help** button on the lower right side of the screen.

   The Help Menu appears.

3. In the section of the Help Menu labeled **Screen Symbols/Colors**, touch **Pump**.

   The Pump Symbols help screen appears, explaining the status represented by each color.

4. When you are finished reviewing the information, touch **Pumps** (or **Stations**).

   The Pump Status (or Station Status) screen appears.

The following table explains the status represented by each color at the Pump Status screen.

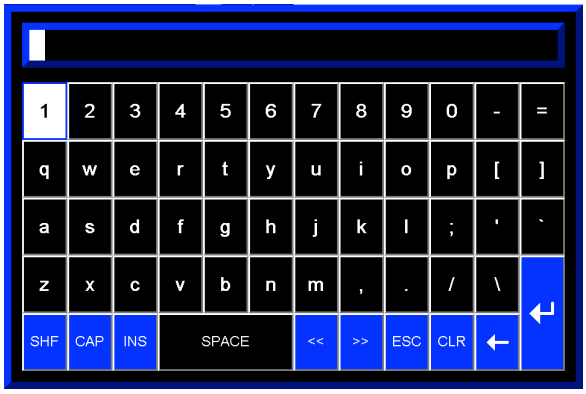
Color	Label	Description
Silver	Offline	Pump is not enabled. The controller ignores any alarms.
Blue	Ready	Pump is off, waiting for demand from a station.
Light Green	Idle	Pump is on, waiting for demand from a station. If there is no demand before the end of the auto shutdown delay, the pump will turn off.
Green	Loading	Pump is conveying material to a station.
White	Cleaning	Pump's air filter is being cleaned by blowing compressed air backward through it.
Orange	Alarm	Pump is in alarm.
Red	Critical	Pump is in critical alarm. The controller has disabled the pump until the alarm is cleared.
Light Yellow	Waiting	Pump is waiting for material to become available.

Additional information about each pump, including configuration settings and the number of hours the pump has been running, is available at the Pump *n* Setup screen. For details on configuration settings, see page 42. For details on the hour meter, see page 68.

Logging On and Logging Off

Your controller may be set up to require a password for any operation (other than reviewing station and pump status, silencing alarms, reviewing the alarm log, and looking at help screens). If so, a password entry screen will appear:

Press the **`Enter Password`** button. A keypad will appear:



- Enter the alphanumeric password.

Each digit appears as an "*" as you touch it. Press ↵ when complete.

If you have lost the password(s), contact the manufacturer for assistance.

Once you have logged on, the password remains active until you log off or the password expires. (Setup personnel at your facility control the number of minutes before the password expires.) While the password is active, you can continue to carry out password-protected tasks without reentering the password. If the timer expires, the controller goes to the Station Status screen and you must reenter the password to continue working.

When you have finished any tasks that require the password, you should log off. (If you forget to do this, the controller will log you off when the password expires.) To log off:

1. Go to System Setup.
2. Touch **`Log Off`** on the right of the screen.

   The Station Status screen appears.

Enabling and Disabling Stations and Pumps

When a station or pump is disabled, the controller does not attempt to use it and ignores any alarms that occur for it. Disabling a station or pump at the controller's screen is similar to bypassing a station with its bypass switch. Enabling a station or pump makes it available for use. (For a station to be available for the system, it must

be enabled at the controller's screen *and* its bypass switch [if present] must be in the "0" position.)

To enable or disable a station (or pump):

1. Go to the Station Status (or Pump Status) screen, if needed.

   To reach this screen from any other screen, touch **`Stations`** (or **`Pumps`**) on the right-hand side of the screen.

   Each disabled station (or pump) has an icon with a status of "offline" (silver). All other statuses are enabled statuses.

2. Touch the icon for the station (or pump) briefly.

   The station (or pump) switches to the new state, as indicated by the color of its icon.

3. If the Station *n* Operator (or Pump *n* Setup) screen appears when you touch the icon, then you have kept your finger on the screen too long. Touch **`Stations`** (or **`Pumps`**) to return to the Status screen and try again.

Reviewing and Adjusting Basic Station Settings

Reaching and Reading the Station Operator Screens

The 10/80 Controller has a Station Operator Settings screen for each station, as shown below. This screen enables you to review and adjust all basic settings for the station.

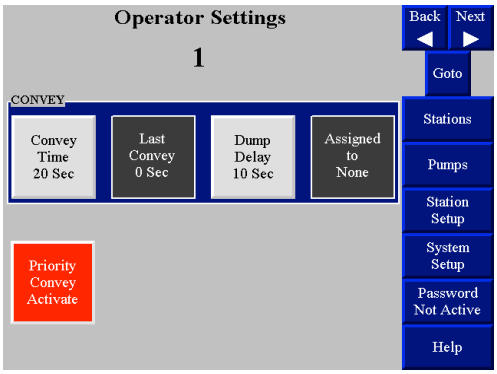
To reach the Station *n* Operator screen:

1. Go to the Station Status screen, if needed.

   To reach this screen from any other screen, touch **`Stations`** on the right-hand side of the screen.

2. Touch and hold the icon for the station, until the controller either prompts for the password or displays the Station *n* Operator screen.

   Once you have entered the password (if needed), the Station *n* Operator screen appears:



Settings in the box labeled **`Convey`**, the red **`Priority Convey Activate`** button, and the menu controls on the right-hand side of the screen appear for all stations. The other options in this screen appear if and only if the station has these features enabled.

Buttons in light gray are settings that you can adjust at this screen. Boxes in dark gray are for display only. If a pump assignment or purge setting needs to be changed, this must be done at the Station *n* Setup screen.

Navigating among the Station Operator Screens

The controls in the upper right-hand corner of the screen enable you to move among the Station Operator screens:

1. To display the screen for the next lower-numbered station (for example, to move from the screen for Station 15 to the screen for Station 14), touch ◄ **Back**.
2. To display the screen for the next higher-numbered station (for example, to move from the screen for Station 15 to the screen for Station 16), touch **Next** ►.
3. To display the screen for a specific station, touch **Goto**. A keypad pops up. Enter the number for the desired station. Use ← to erase any mistakes. Use ↵ to enter the value.
4. To exit to the Station Status (or Pump Status) screen, touch **Stations** (or **Pumps**).

Adjusting Convey Time and Dump Delay

Convey time is the length of time the station's vacuum valve remains open to allow material to be drawn in. (For a volume-fill station, the valve closes when material covers the station's volume-fill proximity sensor or this time elapses, whichever comes first.)

Dump delay is the length of time allowed for material to drain from the station into its receiver. During this time, the controller does not attempt to deliver any more material to the station.

The settings for convey time and dump delay should match the times actually required to fill and empty the station. The following problems may occur if these settings are incorrect:

1. Material is backing up and causing "high vacuum" alarms (for time-fill stations only): Convey time is too long.
2. System is not keeping up with the demand for material: Convey time is too short, or dump delay is too long.

For your reference, the Station *n* Operator screen shows the length of time the controller actually spent conveying material during the most recent delivery under **Last Convey Time**.

To adjust a station's convey time (or the dump delay):

1. Go to the Station *n* Operator screen (as described on p. 64), or go to the Station *n* Setup screen.
2. Touch Convey Time (or Dump Delay).

   A keypad pops up.
3. Enter the number of seconds desired. Use ← to erase any mistakes. Use ↵ to enter the value.

The new setting appears under **Convey Time** (or **Dump Delay**).

Activating and Stopping Priority Convey for a Station

Before activating priority convey, make sure that all other stations using the same pump have adequate material in reserve to continue operation. No material will be conveyed to these stations during priority convey.

If you want the controller to fill a specific station with material immediately, you can activate "priority convey" for that station. When you do so, the controller temporarily dedicates the station's pump to it, ignoring demands from other stations assigned to that pump. Once the chosen station is full, normal operation resumes.

You can also use this feature to give one station a "head start" by conveying a few loads to it and then stopping the priority convey.

No more than one station for a given pump can be in "priority convey" at once.

To activate priority convey:

Go to the Station *n* Operator screen (as described on p. 64), or go to the Station *n* Setup screen.

Touch Priority Convey Activate.

The button changes to **Priority Convey Active** and blinks until the station's demand has been satisfied (or you stop the priority convey).The controller begins filling the chosen station only (after finishing any convey already in progress).

To stop a priority convey before the station is completely full:

Touch the blinking Priority Convey Active.

The button changes to **Priority Convey Activate** and stops blinking. The controller finishes the current convey, if any, and resumes normal operation.

Changing the Mixture for a Remote Proportioning Valve

A remote proportioning valve (RPV) mixes two different materials, typically virgin and regrind materials, during a convey cycle. If present, this valve may be set up so that you control the mix with a timer at the station, or it may be set up so that you control the mix with the controller's touch screen. The instructions here apply only for controlling the mixture from the touch screen.

The controller refers to the two materials as Material A (primary) and Material B (additive). The system is set up so that, if there are any inaccuracies in the proportions, the mix will contain more Material A and less Material B.

To change the mixture for the remote proportioning valve:

1. Go to the Station *n* Operator screen (as described on page 64), or go to the Station *n* Setup screen.
2. Touch RPV Material B.

   A keypad pops up.
3. Enter the desired percentage for the additive material. Use ← to erase any mistakes. Use ↲ to enter the value. The new setting appears under **RPV Material B**.

4-4 Advanced Tasks

This section describes the procedures carried out during operation that are normally reserved for setup personnel. These procedures require use of the setup password (if your facility has defined one). The procedure for logging on with the setup password is the same as for logging on with the operator password; see page 45. Logging off is also the same, except that operators can log off only at the Station *n* Operator screen, while most screens accessible to setup personnel offer **`Log Off`** as an option.

You can also change the setup for stations, pumps, and the system during operation. See Chapter 4, “System Setup,” for information on the procedures and options.

Reviewing and Resetting a Pump Hour Meter

The controller keeps two meters for the length of time a pump has run. One, like a car’s odometer, keeps a running total and cannot be reset. The other, like a car’s trip odometer, counts the running time since the last reset.

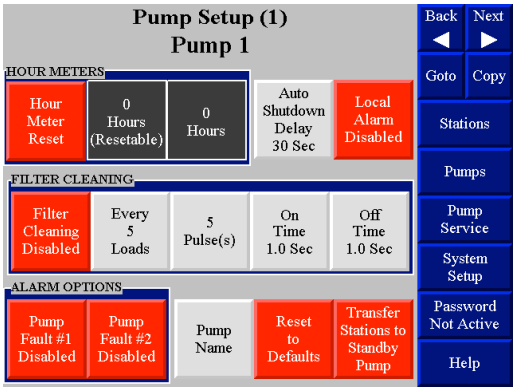
To review and reset the hour meter:

1. At any screen, touch **`Pumps`**.

   The Pump Status screen appears.

2. Touch and hold the icon for the pump.

   The Pump *n* Setup screen appears:



   The box labeled ***`x` `Hours (Resetable)`*** shows the running time since the last reset. The box labeled ***`x` `Hours`*** shows total running time.

3. To reset the resettable meter, touch **`Hour Meter Reset`**.

   The time above **`Hours (Resetable)`** changes to 0.

Transferring Stations to a Standby Pump

If a pump fails, you can transfer all of the controller’s station assignments for that pump to a standby pump. To do this, you must disable (take offline) both the source pump and the standby pump, and the standby pump must have no stations already assigned to it.

The transfer operation at the controller’s touch screen merely changes the pump assignment for every station on the failed pump. It does not transfer any pumps

settings for auto shutdown delay, alarms, or blowback to the standby pump. Mechanical connections must be changed manually.

To transfer stations from a pump to a standby pump:

1. At any screen, touch **Pumps**.

   The Pump Status screen appears.

2. Both the source pump and the standby pump must be offline. If either pump is any other state, disable it by touching its icon briefly.

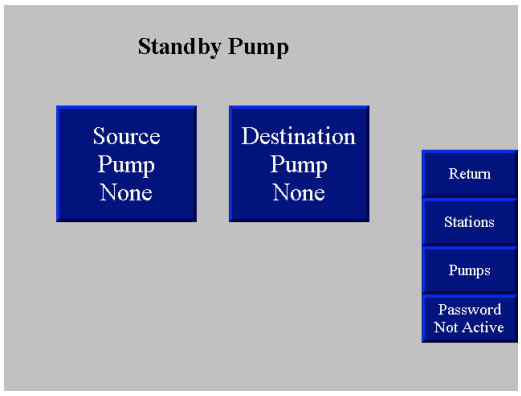
   The icon becomes grey.

3. Move the vacuum hose from the failed pump to the standby pump, and carry out any other mechanical procedures needed to use the standby pump.

4. At the Pump *n* Setup screen, touch and hold the icon for any pump until the Pump *n* Setup screen appears.

5. At the Pump *n* Setup screen, touch **Transfer Stations To Standby Pump**.

   The Transfer to Standby Pump screen appears:



6. Touch Source Pump.

   A list of available pumps pops up.

7. Scroll through the list to choose a source pump. Press Return once you have selected and highlighted your desired source pump.

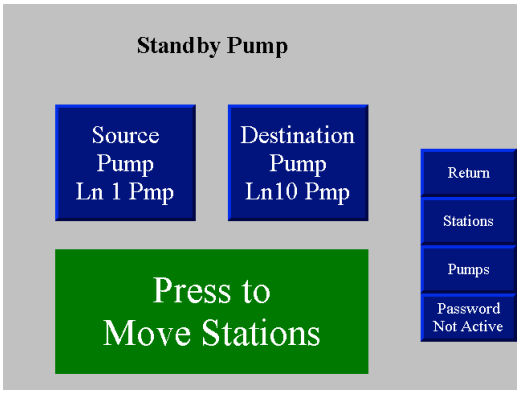
   The number appears under **Source Pump.**

8. Touch Destination Pump.

   A list of available pumps pops up.

9. Scroll through the list of pumps to choose a destination pump. Press Return once you have selected and highlighted your desired destination pump.

   The number appears under **Standby Pump**, and a button labeled **Press to Move Stations** appears on the screen:



10. When you enter the second pump number, the controller checks to make sure that both pumps are offline and that the standby pump has no stations assigned to it. If these conditions are not all met, error messages appear on the screen instead of a **`Press To Move Stations`** button. If you get an error message, first check to make sure that you have entered the correct numbers and reenter if necessary.

If the error message tells you to disable the source pump and/or the standby pump, touch **`Return`** at this screen, then **`Pumps`** at the Pump *n* Setup screen. Take the pumps offline and then return to the Transfer to Standby Pump screen.

If the error message tells you that the standby pump has stations assigned, you must either use a different standby pump or you must remove the pump assignment for all stations assigned to the standby pump. To remove the assignments, touch **`Return`** at this screen, then **`Stations`** at the Pump *n* Setup screen.

Hold a station icon to go to its Station Operator screen, then touch Setup to go to the Station *n* Setup screen. Use **◄ `Back`**. and **`Next`** **►** to review all pump assignments and, where necessary, choose **`Assigned to Pump x`** to set station assignments to 0 (unassigned). Then return to the Transfer to Standby Pump screen.

1. Touch Transfer To Standby Pump.

   "Transfer in Progress" appears briefly on the screen, followed by "Transfer Complete," in place of the **`Transfer To Standby Pump`** button. The controller switches the setting for **`Source Pump`** to the new pump and switches the setting for **`Standby Pump`** to 0 (unassigned).

2. Touch **`Return`**.

   The Pump *n* Setup screen appears.

3. Touch **`Pumps`**.

   The Pump Status screen appears.

4. Put the standby pump online by briefly touching its icon.

   The icon changes color to show the new status, and the system begins using the pump. In addition, all Station *n* Operator and Setup screens show the new pump assignment.

When the failed pump is operational again, you can repeat this process, this time using the standby pump's number as the setting for **Source Pump** the repaired pump's number as the setting for **Standby Pump**.

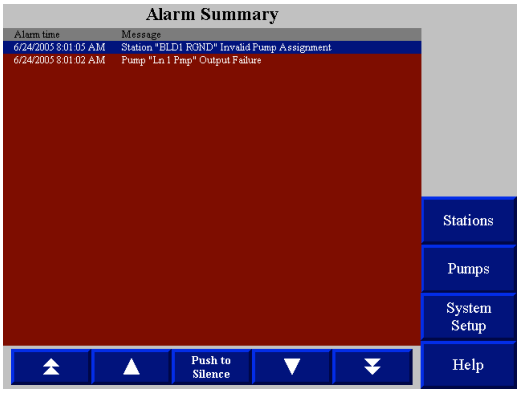
3-5 Alarms

Reviewing Alarms

At the Station Status or Pump Status screen:

1. Touch **Alarms**.

   The Alarm Log screen appears, with the newest alarm listed first:



To scroll up and down through the list:

- Touch ▲ and ▼ at the bottom of the list.

Silencing Alarms

Whenever a new alarm occurs, your controller sounds the horn and turns on the strobe light at each central alarm. If the alarm is for a specific station or pump, and if the station or pump has a local alarm, the controller also turns on the local alarm light. In addition, a banner appears on the touch screen displaying an alarm message and a **Push To Silence** button.

To silence the alarm:

1. Touch **Push to Silence** on the alarm banner.

   The horns and lights at the central alarms turn off. (The local alarm light stays on.) The banner will close. Your controller has separate, configurable settings for how long the horns should remain silent and how long the lights should remain off. If the alarm condition still exists when either of these times elapses, the corresponding devices (horns or lights) turn on again. If a new alarm occurs, both the horns and the lights turn on.

Chapter 5: Maintenance

5-1 Preventative Maintenance

To maintain cooling fan, check and clean and/or replace filter.

Chapter 6: Configurable Settings

This section describes the proper setup of the 10-pump 80-station control system parameters. These parameters are operator changeable; however, these items should require setup only during the initial installation. Only authorized personnel should change them.

Many of the variables and setup parameters have been preset at the factory and do not need to be changed. However, this section of the manual will address all of the setup parameters that were available at the time of printing. The purpose of this is to familiarize the reader with all the setup parameters and their usage.

6-1 Memory Module Considerations

The operator interface and the PLC central processing unit use memory modules to store the operating program and user settings. The module is installed in the front of the PLC CPU card.

The memory module returns the controller to the factory default settings if an electrical fault occurs, or if the hardware is replaced. ***Keep in mind that this condition is extremely rare.*** You will then need to restore saved settings or set up the controller once again with the settings you programmed in this chapter.

6-2 Options for Station Setup

Name	Description	Options	Default
Conveying Options			
Convey time	Length of time the station's vacuum valve remains open to allow material to be drawn in. (For a volume-fill station, the valve closes when material covers the station's volume-fill proximity sensor or this time elapses, whichever comes first.) Adjust this value to match the actual time needed to fill the station.	0–999.9 sec.	30 sec.
(Last convey time)	*Display only.* Length of time the station's vacuum valve was open for receiving material during the most recent convey. This information is displayed for your reference when adjusting convey time and dump delay.	—	—
Dump delay	Length of time allowed for material to drain from the station into the receiver. The controller will not attempt to deliver more material to the station until this time has elapsed. Adjust this value to match the actual time needed to drain the station. If it is set too short, the controller may attempt to refill the station before it is empty, causing material to back up and/or underusing the station's capacity. If it is set too long, the system may be unable to keep up with your equipment's demand for material.	3–99 sec.	10 sec.

Name	Description	Options	Default
Conveying Options			
Assigned to pump *n*	Name of the pump to which this station's vacuum line is connected.		
Special convey	When this option is enabled, the station's vacuum valve remains open for the convey time, even if the station is not demanding material and is indicating that it is full. When disabled, the station's vacuum valve opens when there is demand from the station, and it remains open until the convey time has elapsed or material trips the volume-fill proximity switch. Enable this option if and only if the station has no flapper.	disabled, enabled	disabled
Closed Loop	This option allows material to be conveyed and processed without being contaminated by outside influence (such as dust, other materials, etc.)		
Alarm Options			
No convey	When this option is enabled, the controller issues a "no convey" alarm if it has repeatedly attempted to convey material to the station but the flapper never opened during the dump delay. (The number of attempts is controlled by the next setting.) Usually this option should be enabled. At times, you may wish to disable it during operation as a stopgap measure for dealing with an alarm.	disabled, enabled	disabled
# attempts B4 alarm	Number of attempts before alarm: the number of times the controller will attempt to convey material to a station before it issues a "no convey" alarm. The setting for this option depends on (a) how much material your mold uses to make each part compared with the capacity of the receiver and (b) how important it is to keep your mold from running out of material and shutting down. A higher setting will give you fewer alarms, at the risk of emptying the receiver without warning. A lower setting will give more frequent alarms, at the risk of disrupting operations unnecessarily.	1–99	3

Name	Description	Options	Default
Partial convey	When this option is enabled, the controller issues a “partial convey” alarm if it has repeatedly attempted to convey material to the station, and material has moved from the station into the receiver, but the volume-fill proximity sensor has never signaled that the station is full. (The number of attempts is controlled by the next setting.) For a volume-fill station, this option should usually be enabled. At times, you may wish to disable it during operation as a stopgap measure for dealing with an alarm. For a time-fill station, disable this option.	disabled, enabled	disabled
# attempts B4 alarm	Number of attempts before alarm: the number of times the controller will attempt to convey material to a station before it issues a “partial convey” alarm. The setting for this option depends on the same considerations as those given above for number of attempts before a “no convey” alarm.	1–99	3
Option Input			
Receiver low level	When this option is enabled, the controller issues a “receiver level” alarm if material in the receiver drains below the level of the receiver’s low-level sensor. Enable this option if and only if your facility has installed a low-level sensor for this station’s receiver. At times, you may wish to disable it during operation as a stopgap measure for dealing with an alarm.	disabled, enabled	disabled
Bypass switch	When this option is enabled, a switch at the station is used to disable/”bypass” the station.		
Grinder empty	When this option is enabled, a proximity switch is used to verify that material is present in the grinder bin. The station will only be conveyed to when the receiver is empty and the grinder bin has material.		
Grinder empty with Alarm	When this option is enabled, alarm monitoring is added to the grinder empty option described above. If the grinder bin has material and the receiver is full, a “grinder full” alarm is generated.		
Option output			
Local alarm	When this option is enabled, the controller turns on the local alarm light for any alarm at this specific station. Enable this option if and only if your facility has installed a local alarm light for this station.	disabled, enabled	disabled
Blow back	When this option is enabled, the controller periodically sends compressed air backward through the station’s air filter to dislodge accumulated dust and debris. Enable this option if and only if the station has the equipment for compressed air filter cleaning.	disabled, enabled	disabled

Name	Description	Options	Default
Every *n* loads	Number of conveying cycles between filter cleanings. Adjust this setting based on experience. The more dust and debris in your material line, the smaller this number needs to be.	1–99	5
# pulses	Number of pulses of compressed air sent through the station's filter during cleaning. If blowback is not working as desired, the service department may ask you to change this setting.	1–99	5
On time	Number of seconds that the each air pulse lasts during filter cleaning. If blowback is not working as desired, the service department may ask you to change this setting.	0.1–99.9 sec.	1.0 sec.
Off time	Number of seconds between air pulses during filter cleaning. If blowback is not working as desired, the service department may ask you to change this setting.	0.1–99.9 sec.	1.0 sec.
Slide gate	When this option is enabled, the controller opens the slide gate between the station and the receiver during the dump delay and during blowback. Enable this option if and only if the station has a slide gate instead of a flapper and demand switch.	disabled, enabled	disabled
Purge	When enabled, this option allows the system to empty the material line completely after every convey to this station. The station's pump continues to draw without picking up material for an extra period of time after conveying is finished. Enable this option if and only if you are using a purge valve for this station. This option cannot be used with a volume-fill station.	disabled, enabled	disabled
Purge duration	Number of seconds allowed for purging. The station's vacuum valve remains open for the convey time plus this time. Adjust this setting to the amount of time required for material to travel from the pickup point (purge valve) to the station.	0–999 sec.	20 sec.
Purge valve	Number (address) for the purge valve used with this station. Set this to match the number (address) for the purge valve that services this station. If another station has the purge valve that services this station, enter the number of that station (range: 1–50). If a central purge valve services this station, enter the number (address) of that valve (range: 51–154).	1–154	0 (= not assigned)
Material set to *n*	Number for the material line that should be connected to this station.	0 –150	0 (= not assigned)

Name	Description	Options	Default
RPV (Remote Proportioning Valve)	This option allows the system to use a remote proportioning valve to mix two different materials, typically virgin and regrind materials, during a convey cycle. Touching **RPV** repeatedly at the Station *n* Setup screen steps through the three choices. Enable this option with PLC control if you will be adjusting the mix from the controller's touch screen. Enable this option with local control if the station operator will be adjusting the mix using a timer box at the station.	disabled, enabled PLC, enabled local	disabled
RPV material B	Percentage of the additive material to be included in the mix. This setting applies only when RPV is enabled with PLC control. The system is set up so that, if there are any inaccuracies in the proportions, the mix will contain more Material A and less Material B than specified here.	0 –100%	30%
Cycles	Number of Cycles of depositing Material A and Material B during the convey time. This setting applies only when RPV is enabled with PLC control and Material Purge is not enabled. Example : If you set convey time to 30 seconds, RPV Cycles to 3 and Material B% to 30% (*so Material A is 70%*), the system will convey as follows: Material A for 7 seconds Material B for 3 seconds (*End Cycle 1*) Material A for 7 seconds Material B for 3 seconds (*End Cycle 2*) Material A for 7 seconds Material B for 3 seconds (*End Cycle 3*) In a volume-fill station, a cycle will be truncated before completion if the station becomes full.	1–100	1

6-3 Options for Pump Setup

Several of the items in this screen are not setup options but are instead intended for use during operation. These items (hour meter and transferring stations to a standby pump) are described in Chapter 4, "Operation."

Name	Description	Options	Default
Idle Time Options			
Auto Shutdown Delay	Length of time the pump continues to run unloaded without demand from any station. After this time has elapsed, the pump shuts down to save power and to prevent wear on the pump. Adjust this setting to fit the needs of your facility in trading off the savings against the costs associated with waiting for a pump to start up when there is a demand for material.	0–999 sec.	45 sec.
Alarm Options			
Local alarm	When this option is enabled, the controller turns on the local alarm light for any alarm at this specific pump. Enable this option if and only if your facility has installed a local alarm light for this pump.	disabled, enabled	disabled
Pump fault #1	The ArmorBlock for each pump has two inputs that you can wire to generate alarms for situations of your choosing. These alarms can be configured as standard or critical. Standard means that the pump continues to operate. Critical means that the pump is disabled. For example, you may have a sensor that turns on when material reaches the top of a filter-chamber waste bin. When this option is enabled, the controller issues an alarm if the sensor wired to the input for Pump Fault #1 turns on. Enable this option if and only if your facility has installed a miscellaneous alarm on the input for Pump Fault #1 for this pump.	disabled, enabled	disabled
Pump fault #2	See the explanation for Pump fault #1 above. Enable this option if and only if your facility has installed a miscellaneous alarm on the input for Pump Fault #2 for this pump.	disabled, enabled	disabled
Filter Cleaning Options			
Blow back	When this option is enabled, the controller periodically sends compressed air backward through the pump's air filter to dislodge accumulated dust and debris. Enable this option if and only if the pump has the equipment for compressed air filter cleaning.	disabled, enabled	disabled
Every *n* loads	Number of conveying cycles to stations between filter cleanings. Adjust this setting based on experience. The more dust and debris in your material line, the smaller this number needs to be.	1–99	5

Name	Description	Options	Default
# pulses	Number of pulses of compressed air sent through the pump's filter during cleaning. If blowback is not working as desired, the service department may ask you to change this setting.	1–99	5
On time	Number of seconds that the air compressor remains on for each pulse during filter cleaning. If blowback is not working as desired, the service department may ask you to change this setting.	0.1–99.9 sec.	1.0 sec.
Off time	Number of seconds between air pulses during filter cleaning. If blowback is not working as desired, the service department may ask you to change this setting.	0.5–99.9 sec.	1.0 sec.
Implosion with Seal Valve	When this option is enabled, the controller builds a vacuum in the filter chamber by isolating it from the rest of the system with the sealing valve. The vacuum is then released to dislodge dust and debris.		
Implosion without Seal Valve	When this option is enabled, the controller builds a vacuum in the filter chamber by isolating it from the rest of the system by closing all the station sequence valves assigned to that pump. The vacuum is then released to dislodge dust and debris.		
Every *n* Loads	Number of conveying cycles to stations between filter cleanings. Adjust this setting based on experience. The more dust and debris in your material line, the smaller this number needs to be.	1–99	5
# Pulse(s)	Number of pulses of compressed air sent through the pump's filter during cleaning. If blowback is not working as desired, the service department may ask you to change this setting.	1–99	5
Vacuum Time	Number of seconds allowed for the vacuum to build up in the filter chamber		
Release Time	Number of seconds allowed for the vacuum in the filter chamber to dissipate.		

Chapter 7: Troubleshooting

7-1 General Troubleshooting

Problem	Possible cause	Solution
The controller panel doesn't light up at all.	The controller panel is not connected to a power source.	Plug in the controller panel.
	Fuse/circuit breaker in the power drop is blown/tripped.	Replace/reset.
	Broken controller power switch.	Replace.
A pump package doesn't run, even though it is on line and its indicator is lit.	The motor circuit breaker/ overload has tripped.	Reset the circuit breaker and check the motor for the proper amp draw on tag.
	Main fuse in power drop circuit breaker has blown.	Replace the fuse/reset circuit breaker.
	Motor contact is faulty.	Repair or replace as required.
A vacuum hopper is being bypassed in the loading cycle.	The bin below it is full if its amber indicator light is off.	Normal operation. When the level drops, material conveys to the hopper.
	The hopper is off line.	Using the controller, place the hopper on line.
	The field-installed station bypass switch is simulating a Bin Full condition.	Normal operation. Set the switch so the hopper is back in the loading sequence.
	The field-installed station bypass switch is bad or mis-wired.	Repair, replace, or rewire.
Vacuum hoppers are over-filling.	Conveying times are too long (Time Fill mode only).	Time the hopper(s) during loading, and set conveying times to a few seconds less.
	Maximum conveying times are too long and/or the controller does not recognize the Hopper Full proximity switch(es).	Check proximity sensors for proper operation. Repair as needed. Reset the conveying times to a reasonable value, and adjust as needed.
Controller blows fuses.	Power supply shorting out.	Repair shorting circuit.
	Improper fuse installed.	Replace fuse with one that has a proper rating.

7-2 Alarms

The format for all station alarms is "Station *n* [alarm text]," for example, "Station 12 receiver low level." The format for all pump alarms is "Pump *n* [alarm text]." Any alarm that does *not* start with "Station" or "Pump" is a system alarm.

The following tables list all alarms alphabetically, together with possible causes. A "critical" alarm is one that causes the affected device to stop.

2. You can also see a list of alarms and their causes in the controller's online help. To display this information, touch the color key of statuses in the upper right-hand corner of either the Station Status or the Pump Status screen, or touch **`Help`** at any other screen. When you are finished reviewing the help. touch **`Return`**.

Station Alarms

Alarm message	Possible cause
Blowback solenoid failure *(Critical)*	Patch cord is cut or disconnected.
	Solenoid has failed.
Closed Loop Pump X Failure	Patch cord is cut or disconnected.
	Solenoid has failed.
Grinder full	Process generating excess scrap
High vacuum	Material line is blocked.
	Vacuum line is blocked.
	Station's sequence valve has malfunctioned.
	Note: After you have corrected the cause of this alarm, the alarm will be cleared when the controller has conveyed a full load to this station.
Invalid pump assignment	Invalid pump assignment setting.
No convey	Convey time is too short.
	Material container is empty.
	Take-off compartment is not adjusted properly.
	Material line is disconnected from source.
	Vacuum line is disconnected from station.
	Note: As a stopgap measure, you can disable the "no convey" alarm for this station until the problem can be remedied. See pp. 74.
Not present *(Critical)*	ArmorBlock is not installed properly.
	ArmorBlock is not addressed properly.
	ArmorBlock is defective.
	ArmorBlock base is defective.
Output power failure *(Critical)*	Power supply is not turned on.
	Power supply is not connected properly
	Power supply fuse blown.
	Station ArmorBlock is not installed properly
	ArmorBlock is defective.
Partial convey	Take-off compartment is not adjusted properly.
	Pick-up wand is not positioned properly.
	Convey time is too short.
	Vacuum line has a leak.
	Volume fill prox. Is not calibrated properly.
	Note: As a stopgap measure, you can disable the "partial convey" alarm for this station until the problem can be remedied. See pp. 66.

Alarm message	Possible cause
Pump X Option Output Conflict	An assigned station has closed loop enabled and the pump has either implosion with sealing valve or Local Alarm enabled.
Purge Valve X Failure	Patch cord is cut or disconnected
	Solenoid has failed.
Purge Valve X Not Present	ArmorBlock is not installed properly.
	ArmorBlock is not addressed correctly.
	ArmorBlock is defective.
	ArmorBlock base is defective.
Purge Valve X Power Failure	Patch cord is cut or disconnected.
	Solenoid has failed.
Receiver Level	Pick up wand is not positioned properly.
	Take-off compartment is not adjusted properly.
	Leak in vacuum line.
RPV Failure	Patch cord is cut or disconnected.
	Solenoid has failed.
Sequence Valve Failure	Patch cord is cut or disconnected.
	Solenoid has failed.
Slide Gate Failure	Patch cord is cut or disconnected.
	Solenoid has failed.

Pump Alarms

Alarm message	Possible cause
Blowback Solenoid Failure *(Critical)*	Patch cord is cut or disconnected.
	Solenoid has failed.
Clearing Valve Failure	Patch cord is cut or disconnected.
	Solenoid has failed.
Failure	Pump disconnect is off.
	Patch cord is cut or disconnected.
	Pump contactor has malfunctioned.
General Fault 1	The alarm is user configured.
General Fault 2	The alarm is user configured.
High Vacuum Switch Failure	High vacuum switch is maladjusted.
	High vacuum switch is wired incorrectly.
	High vacuum switch is defected.
Not Present *(Critical)*	ArmorBlock is not installed properly.
	ArmorBlock is not addressed correctly.
	ArmorBlock is defective.
	Base of ArmorBlock is defective.
Output Failure	Patch cord is cut or disconnected.
	Pump disconnect is off.
	Contactor has failed.
Output Power Failure *(Critical)*	Power supply is not turned on.
	Power supply is not connected properly
	Power supply fuse blown.
	Pump ArmorBlock not installed properly.
	ArmorBlock is defective.
Contactor Fault	Contactor is mis-wired.
	Contactor has failed.
Sealing Valve Failure	Patch cord is cut or disconnected.
	Solenoid has failed.
Too Many Stations Assigned	More than 50 stations have been assigned to a pump.
Vent Solenoid Failure	Patch cord is cut or disconnected.
	Solenoid has failed.

System Alarms

Alarm message	Possible cause
Alarm Horn Silence Expired	The alarm horn silence duration time has passed and at least one alarm is still present on the system.
Alarm Strobe Suppress Expired	The alarm beacon suppress duration time has passed and at least one alarm is still present on the system.
DeviceNet Scanner Communications Failure	Control panel is not connected to flat cable.
	Control panel network cable not installed correctly.
	Power supply not turned on.
	Power supply not connected properly.
	Power supply fuse blown.
Main Control Panel Power Supply Failure	Panel power supply fuse blown.
	Panel power supply has failed.
Network Power Failure	Control panel is not connected to flat cable.
	Control panel network cable is not installed correctly.
	Power supply not connected properly.

Chapter 8: Appendix

8-1 Optional Components

The following is a list of options that your controller may be equipped with:

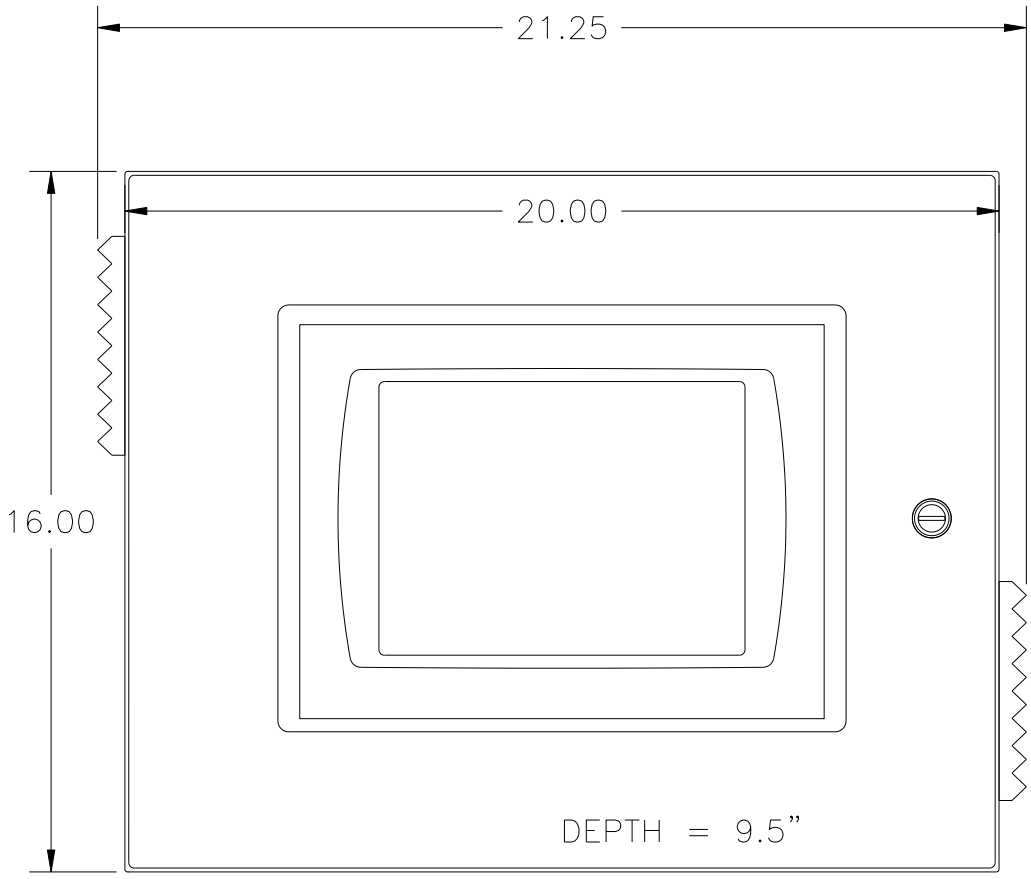
230/1/60 Operation. Required to operate with a 230/1/60 supply voltage.

Additional audible/visual alarm with silence button. Alarm light and horn assembly that can be remote mounted and wired into the controller to indicate an alarm condition.

Remote Interface.

8-2 Drawings and Diagrams

Figure 20: 10-Pump, 80-Station Controller with 10" Display

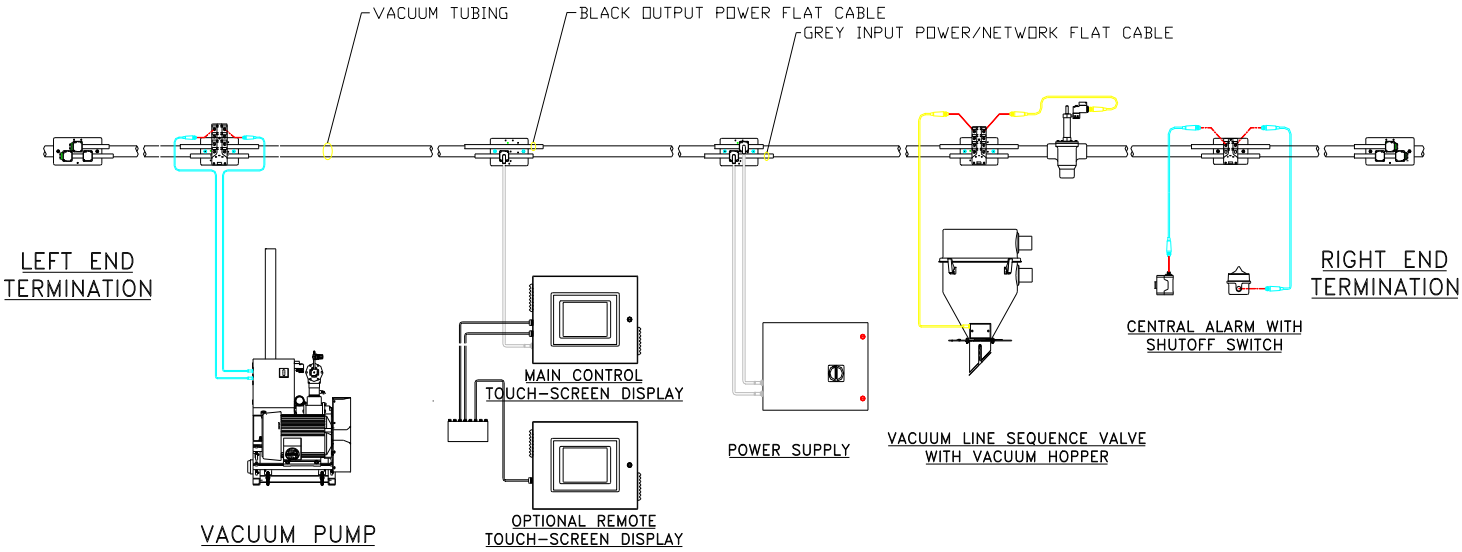


Also, review electrical drawings supplied in the packet with this manual.

NOTICE

Allow 12” of clearance on each side of the controller for ventilation and cables.

Figure 21: Typical System Installation Layout

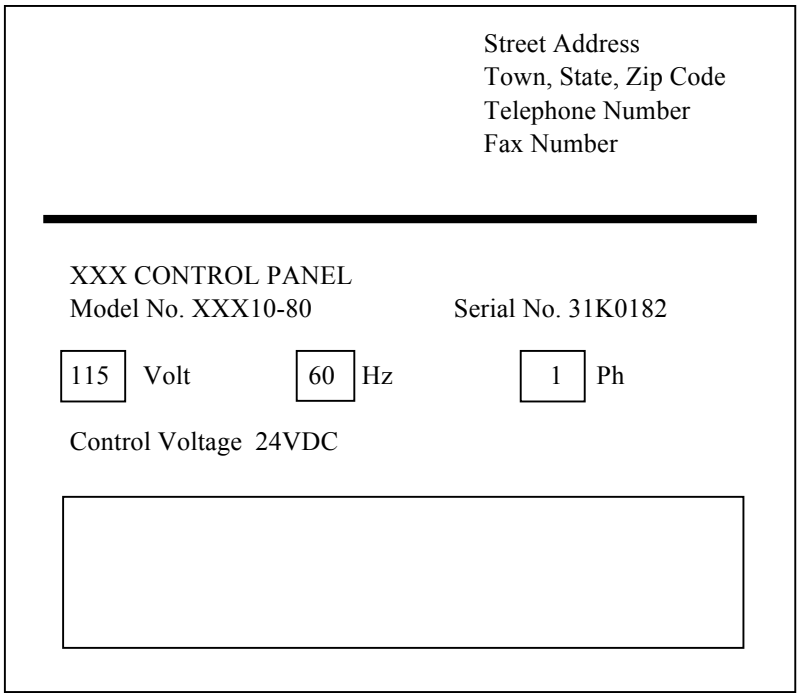


8-3 Main Control Panel Spare Parts List

Quantity	Part Number	Description
1		Filter only- Clean as needed
1	A0569859	Fan grill with filter
1	739.00017.00	4A Power supply
1	A0542203	2A MDL fuse
1	A0568903	10A FNQ fuse
1	A0542205	2.5A MDL fuse
1	A0542209	4A MDL fuse

8-4 Controller Identification (Serial Number) Tag

(Located on the side of the controller box)



8-5 Technical Assistance

Parts and Service Department

The ACS Customer Service Group will provide your company with genuine OEM quality parts manufactured to engineering design specifications, which will maximize your equipment's performance and efficiency. To assist in expediting your phone or fax order, please have the model and serial number of your unit when you contact us. A customer replacement parts list is included in this manual for your convenience. ACS welcomes inquiries on all your parts needs and is dedicated to providing excellent customer service.

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8-6 10 Pump / 80 Station Convey Control Hardware Setup and Upgrade Instructions

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VersaView CE 1000H Setup …… 89
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CompactLogix L35E Setup

Use this procedure to setup a new CompactLogix PLC for use on a 10 Pump – 80 Station Convey Control.

1. Verify that the control is powered down and the PLC CPU key switch is in the RUN position.
2. Insert the configuration compact flash card containing the new version of the software labeled **PLC Configure 744.00130.00** into the PLC CPU (*Fig 1*).

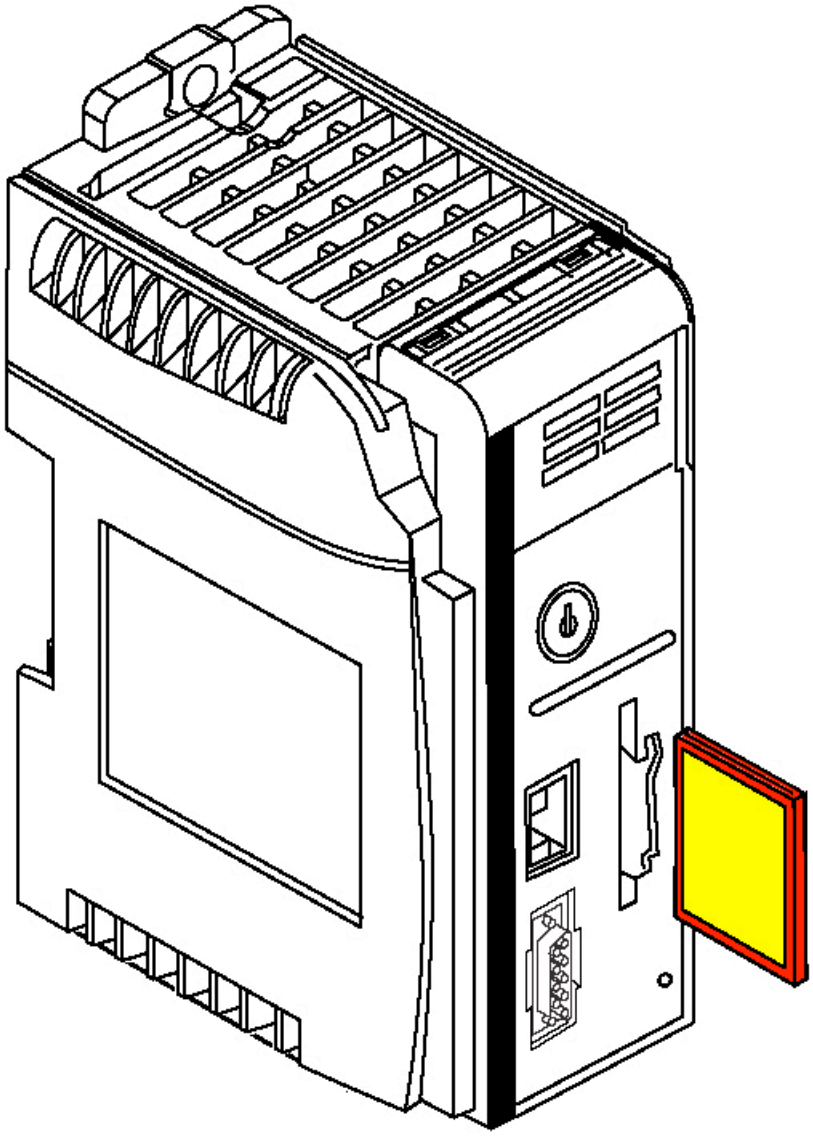

Fig 1

3. Turn on power.

4. Wait for the **Run** LED on the top front of the CPU to turn solid green and for the **I/O** LED to stop blinking (*Fig 2*) for 30 seconds. Since a new CPU requires a firmware upgrade this will take about 2-3 minutes. **Do not turn off power until the upgrade completes.**

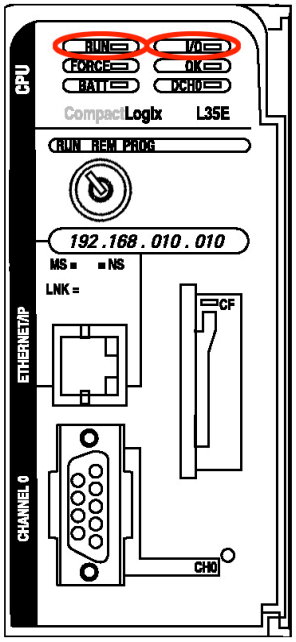

Fig 2

5. Turn off power to the control enclosure. Wait 5 seconds. Turn on power.
6. Wait for the **I/O** LED to stop blinking (*Fig 2*).
7. Remove the card labeled **PLC Configure 744.00130.00** from the PLC CPU by pressing the retaining clip to the right and pulling the compact flash card straight out.
8. If you have a compact flash card with your system settings save on it, insert it into the PLC CPU. If not, skip to step #**14**.

9. Go to the **System Setup** Screen (*Fig 3*) by pressing the System Setup button on any screen.

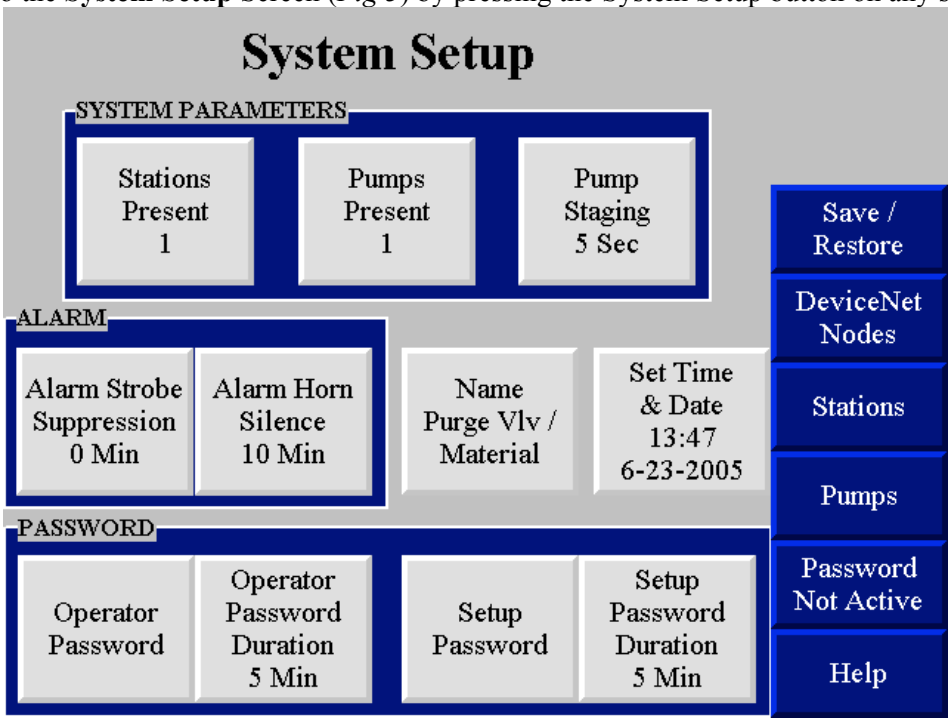

Fig 3

10. Go to the **Save / Restore** Screen (*Fig 4)* by pressing the Save / Restore button on the right side of the screen.

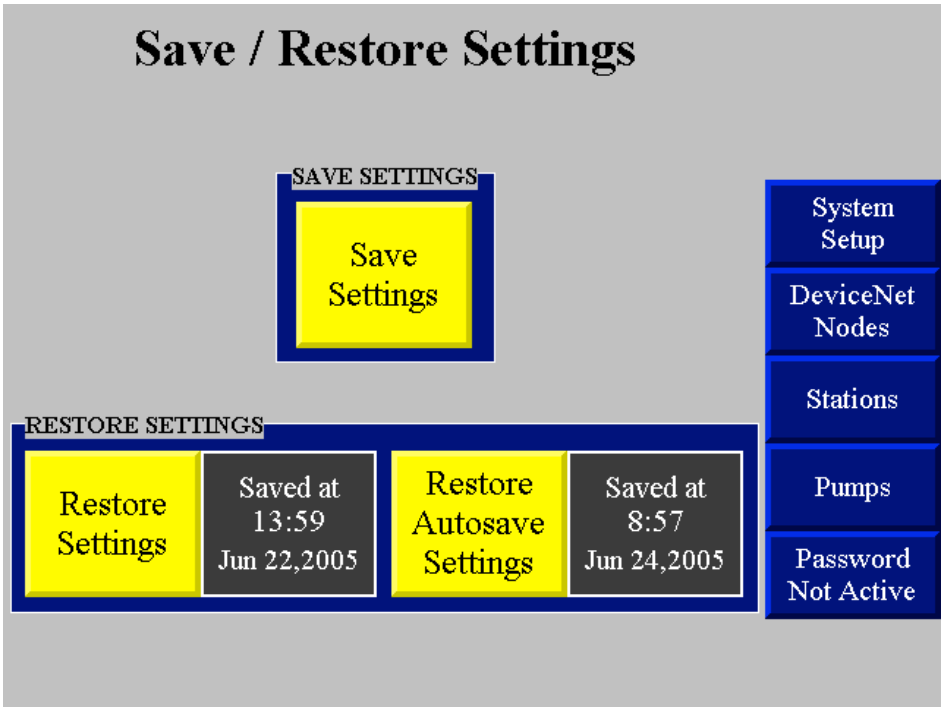

Fig 4

11. **Restore Settings** by pressing the yellow Restore Settings button.
12. Wait for the "**Restore Complete**" message. (*This message is only displayed for 10 seconds*).
13. Remove compact flash card with the saved settings from the PLC CPU by pressing the retaining clip to the right and pulling the compact flash card straight out.
14. Insert the operation compact flash card containing the new version of the software labeled **PLC Operate 744.00131.00** into the PLC CPU.

15. **Save Settings** by pressing the yellow Save Settings button.
16. Wait for the "**Save Complete**" message. (*This message is only displayed for 10 seconds*).
17. Go to the **System Setup** screen by pressing the System Setup button.
18. Verify that the clock has the correct time. If not, set the correct time by pressing the **Set Time & Date** button.

CompactLogix L35E Upgrade

Use this procedure to upgrade the software on a CompactLogix PLC for use on a 10 Pump – 80 Station Convey Control.

1. If the control is off, turn it on and wait for the control to power up.
2. Verify that the key switch on the front of the PLC CPU is in the **RUN** position.
3. Remove existing compact flash card from the PLC CPU by pressing the retaining clip to the right and pulling the compact flash card straight out (*Fig 5*).

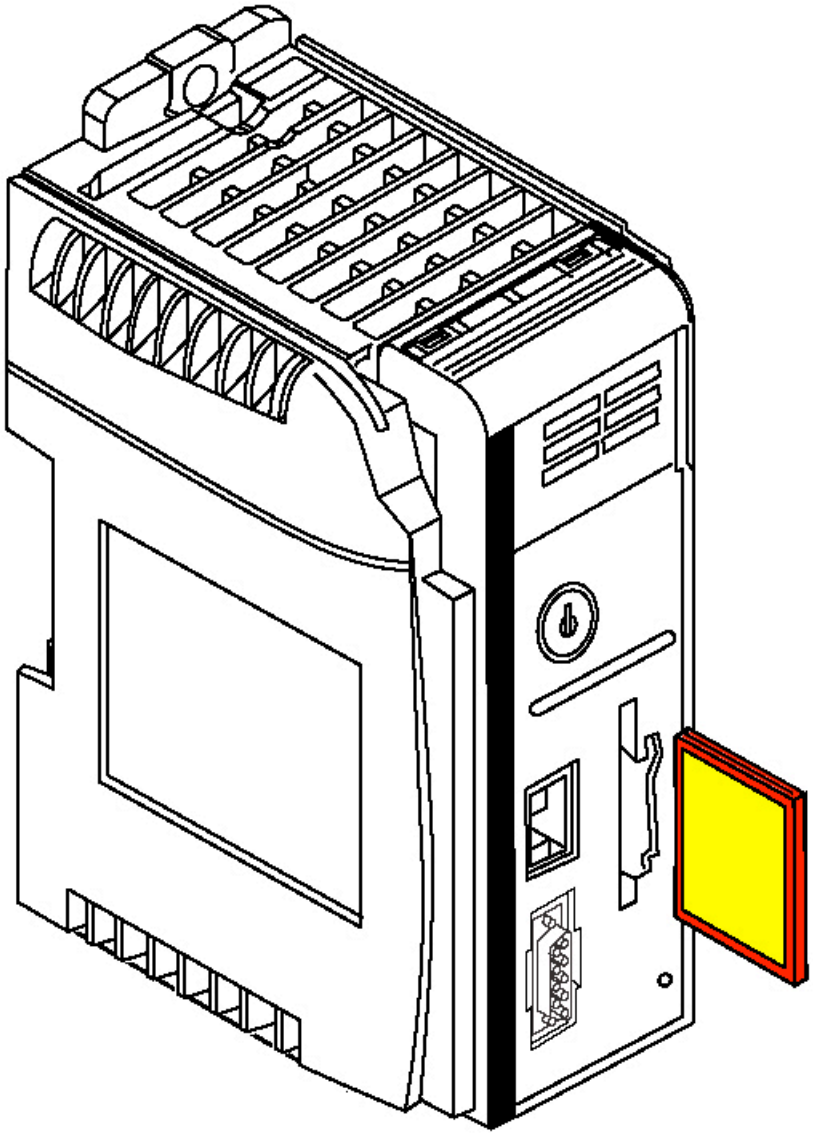

Fig 5

4. Insert the configuration compact flash card containing the new version of the software labeled **PLC Configure 744.00130.00** into the PLC CPU.

5. Go to the **System Setup** Screen (*Fig 6*) by pressing the System Setup button on any screen.

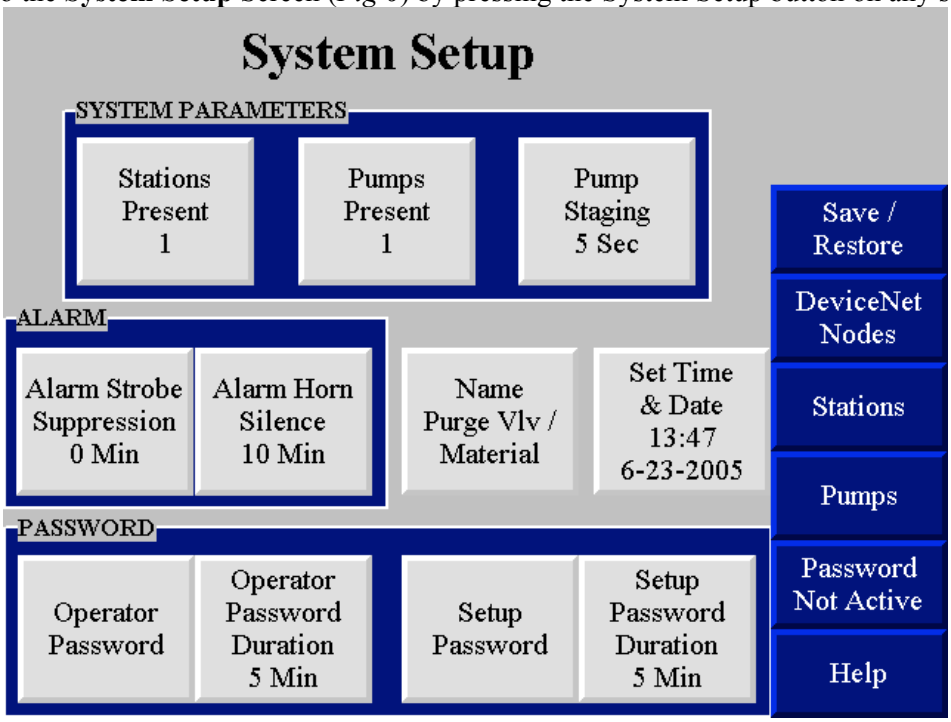

Fig 6

6. Go to the **Save / Restore** Screen (*Fig* 7) by pressing the Save / Restore button on the right side of the screen.

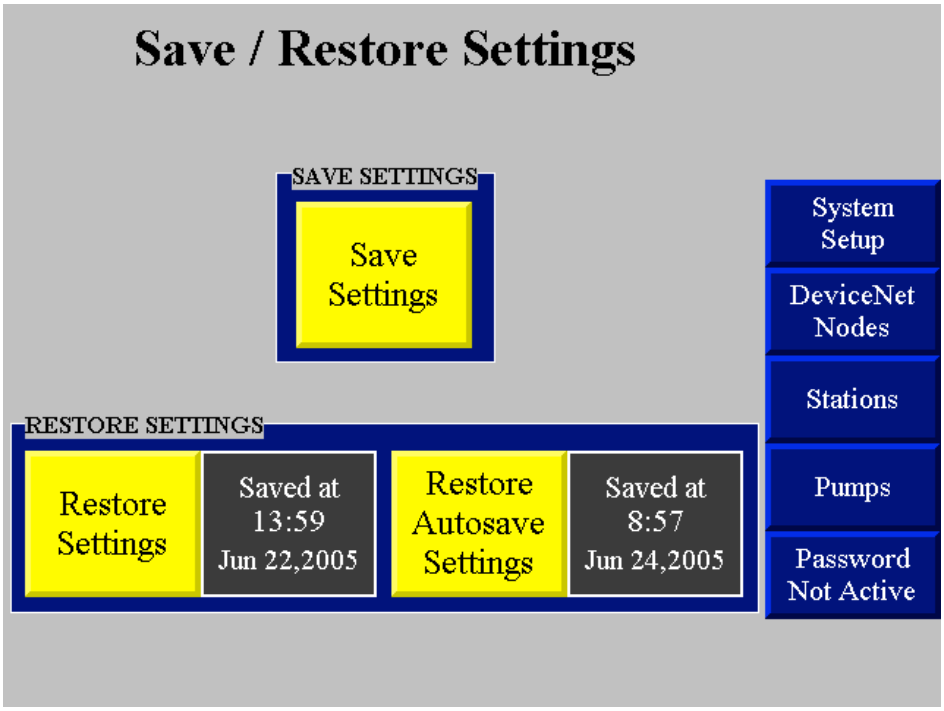

Fig 7

7. **Save Settings** by pressing the yellow Save Settings button.
8. Wait for the "**Save Complete**" message. (*This message is only displayed for 10 seconds*).
9. Turn off power to the control enclosure. Wait 5 seconds. Turn on power.
10. Wait for the **Run** LED on the top front of the CPU to turn solid green and for the **I/O** LED to stop blinking (*Fig 8*) for 30 seconds. If a firmware upgrade is not required, this will only take

about 10 seconds. If a firmware upgrade is required, this will take about 2-3 minutes. **Do not turn off power until the upgrade completes.**

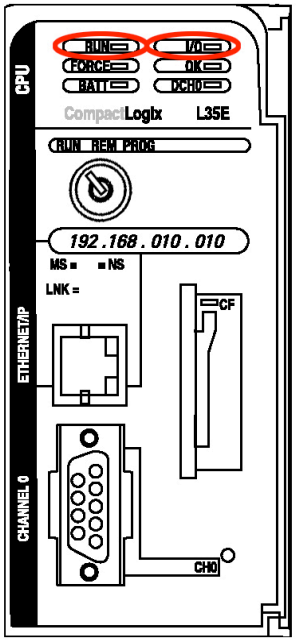

Fig 8

11. Turn off power to the control enclosure. Wait 5 seconds. Turn on power.
12. Go to the **System Setup** Screen by pressing the System Setup button on any screen.
13. Go to the **Save / Restore** Screen by pressing the Save / Restore button on the right side of the screen.
14. **Restore Settings** by pressing the yellow Restore Settings button.
15. Wait for the "**Restore Complete**" message. (*This message is only displayed for 10 seconds*).
16. Remove compact flash card labeled **PLC Configure 744.00130.00** from the PLC CPU by pressing the retaining clip to the right and pulling the compact flash card straight out.
17. Insert the operation compact flash card containing the new version of the software labeled **PLC Operate 744.00131.00** into the PLC CPU.
18. **Save Settings** by pressing the yellow Save Settings button.
19. Wait for the "**Save Complete**" message. (*This message is only displayed for 10 seconds*).
20. Go to the **System Setup** Screen (*Fig 6*) by pressing the System Setup button.
21. Verify that the clock has the correct time. If not, set the correct time by pressing the **Set Time & Date** button.

VersaView CE 1000H Setup

Use this procedure to setup a new VersaView display or to upgrade a VersaView display for use on an AEC 10 Pump – 80 Station Convey Control.

1. Remove the compact flash card from the VersaView if one is installed by pressing the Eject Button (*Fig 9*).

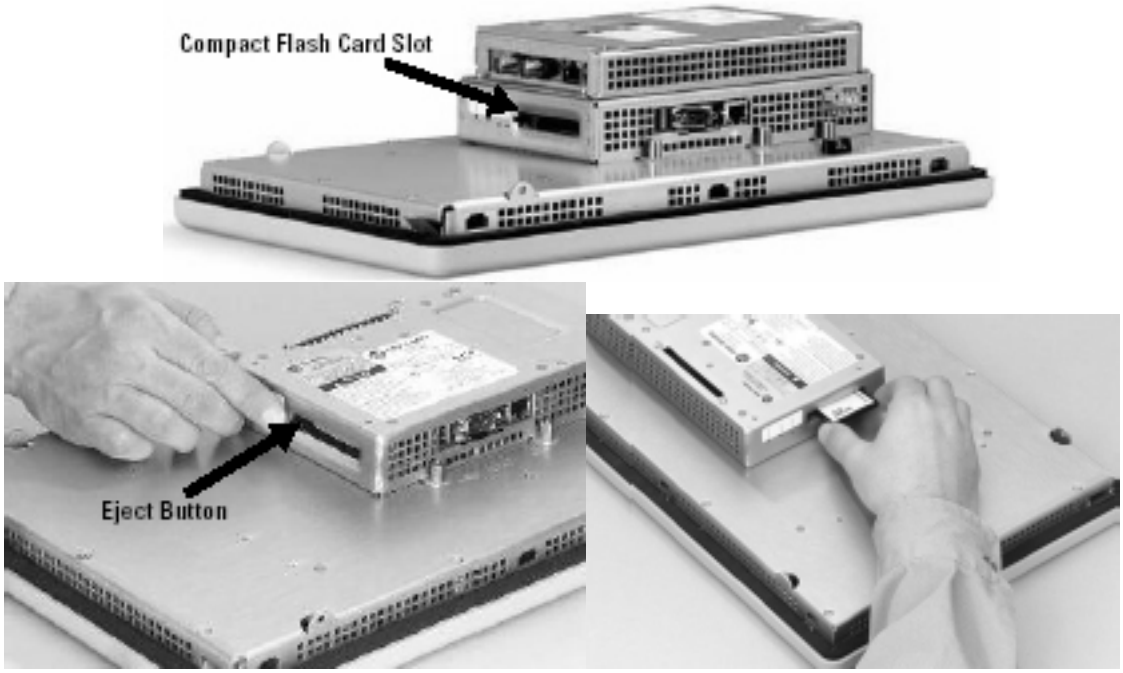

Fig 9

2. If you are setting up a Remote Display, disconnect the Ethernet cable connecting the VersaView to the network. If you are setting up the Primary Display, leave the Ethernet cable connected.
3. Cycle power on the VersaView.

4. If you are upgrading a VersaView that has been configured to work with 10 Pump – 80 Station control an Error screen (*Fig 10*) will appear. Press the "**OK [F7]**" button to close the screen.

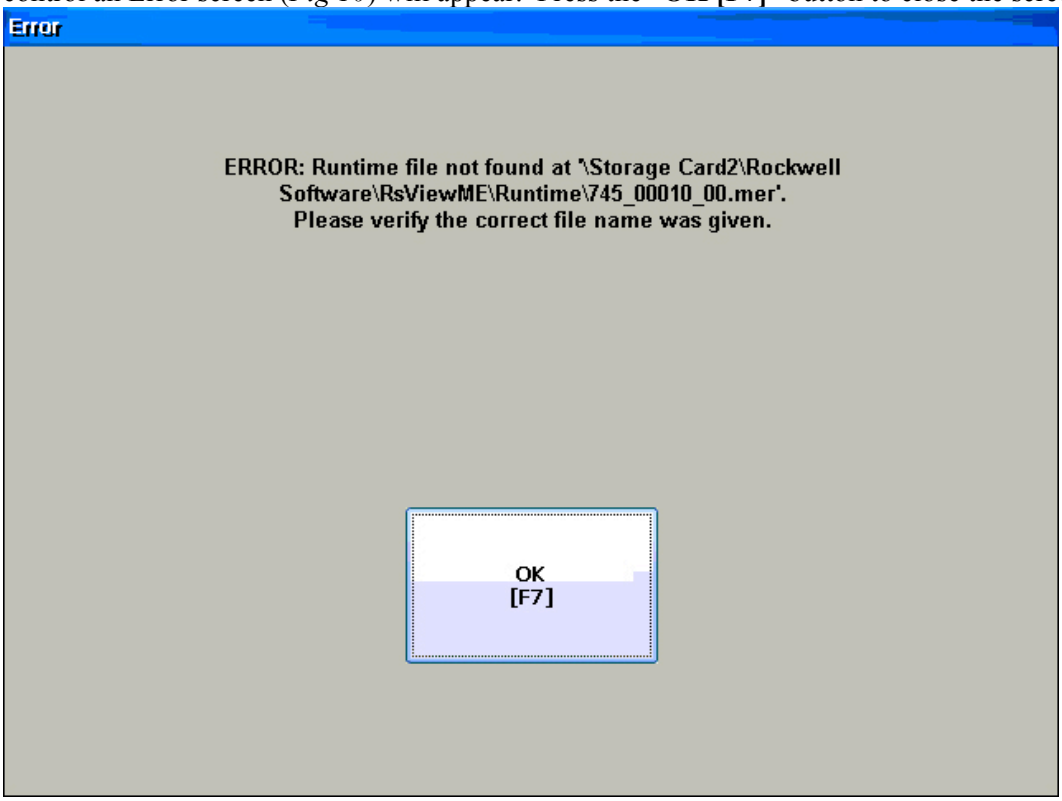
Error
ERROR: Runtime file not found at '\Storage Card2\Rockwell Software\RsViewME\Runtime\745_00010_00.mer'.
Please verify the correct file name was given.
OK
[F7]

Fig 10

5. If VersaView boots to the Windows CE desktop (*Fig 11*) skip to step 26.

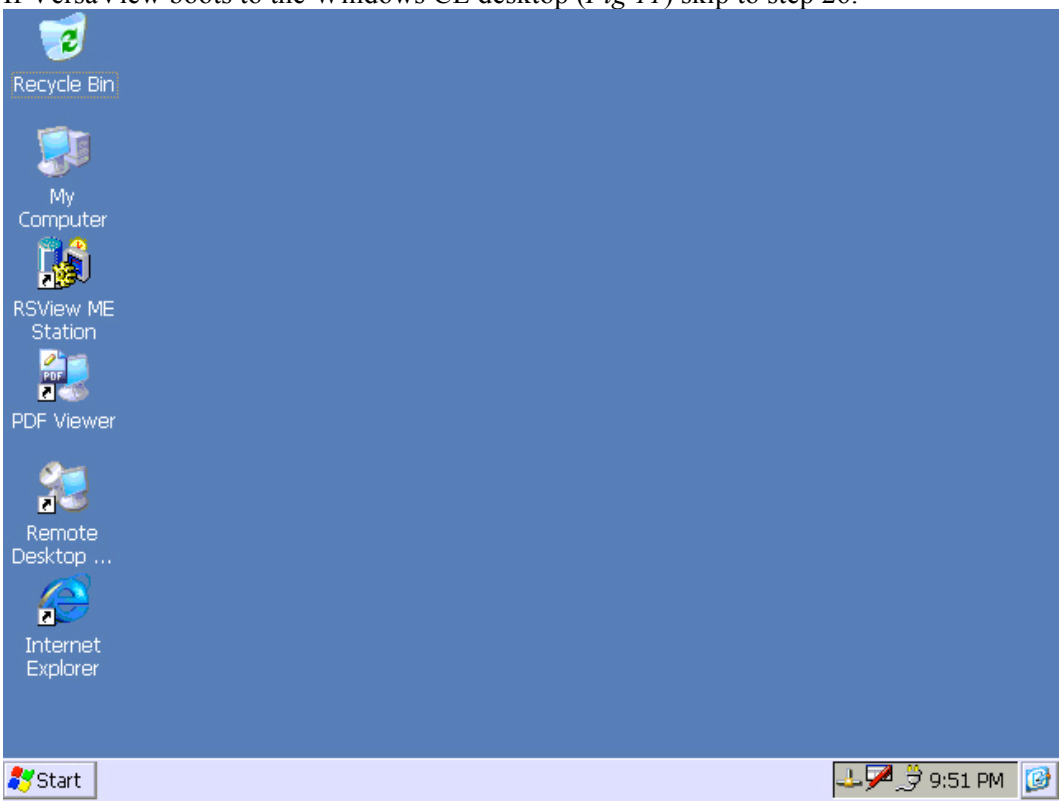

Fig 11

6. If the VersaView boots to the RSView ME Station screen with an "**Exit [F8]**" button (*Fig 12*), press the "**Exit [F8]**" button to bring up the Windows CE desktop (*Fig 11*). Skip to step 26.

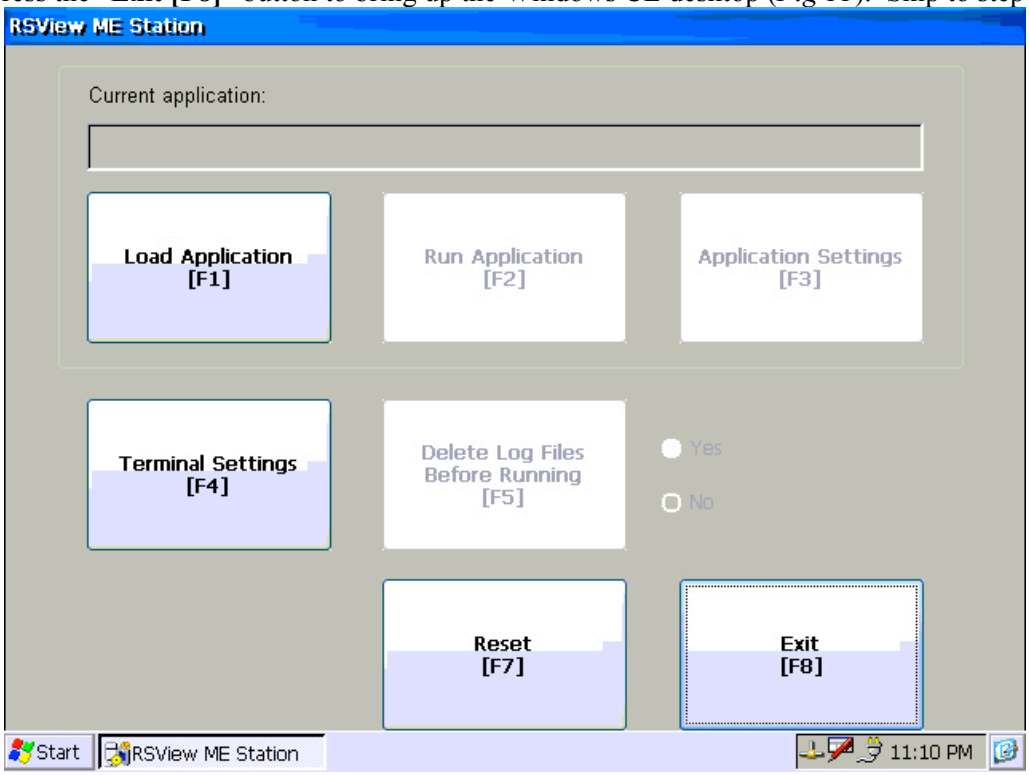

Fig 12

7. If the VersaView boots to the RSView ME Station screen without an "**Exit [F8]**" button (*Fig 13*), insert the VersaView Program Compact Flash Card labeled **744.00133.00 10P80S Disp Program.**

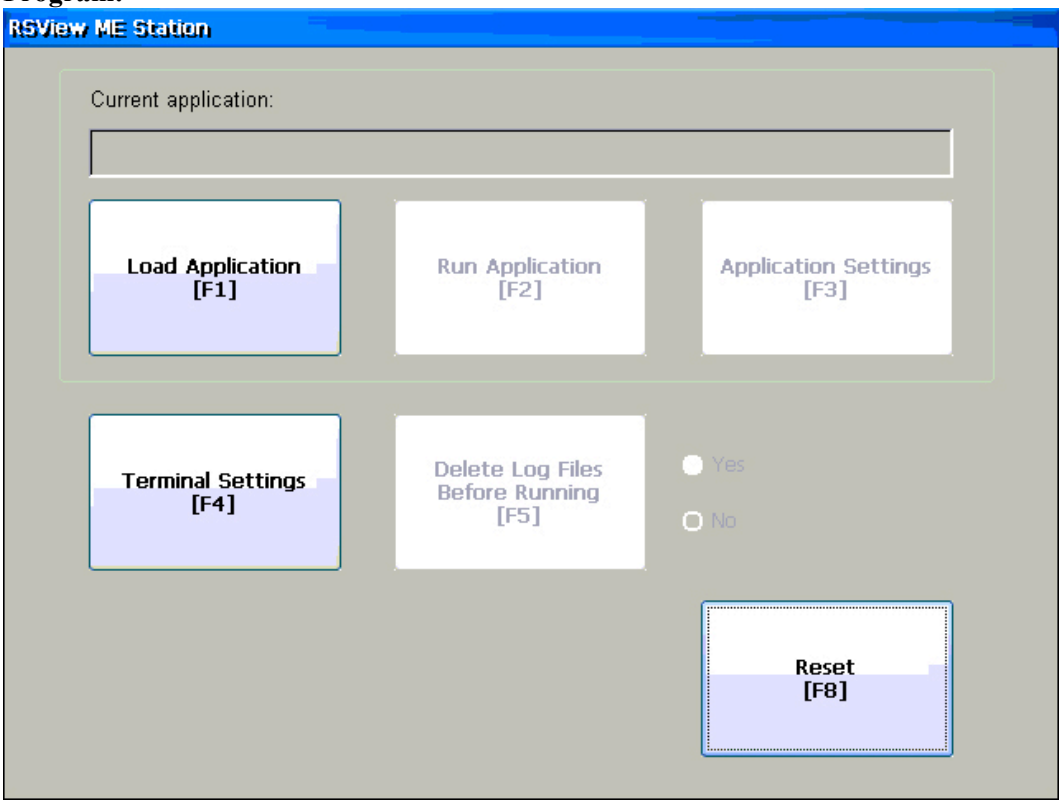

Fig 13

8. Press the "**Load Application [F1]**" button.

9. The Load Application Screen (*Fig 14*) will appear.

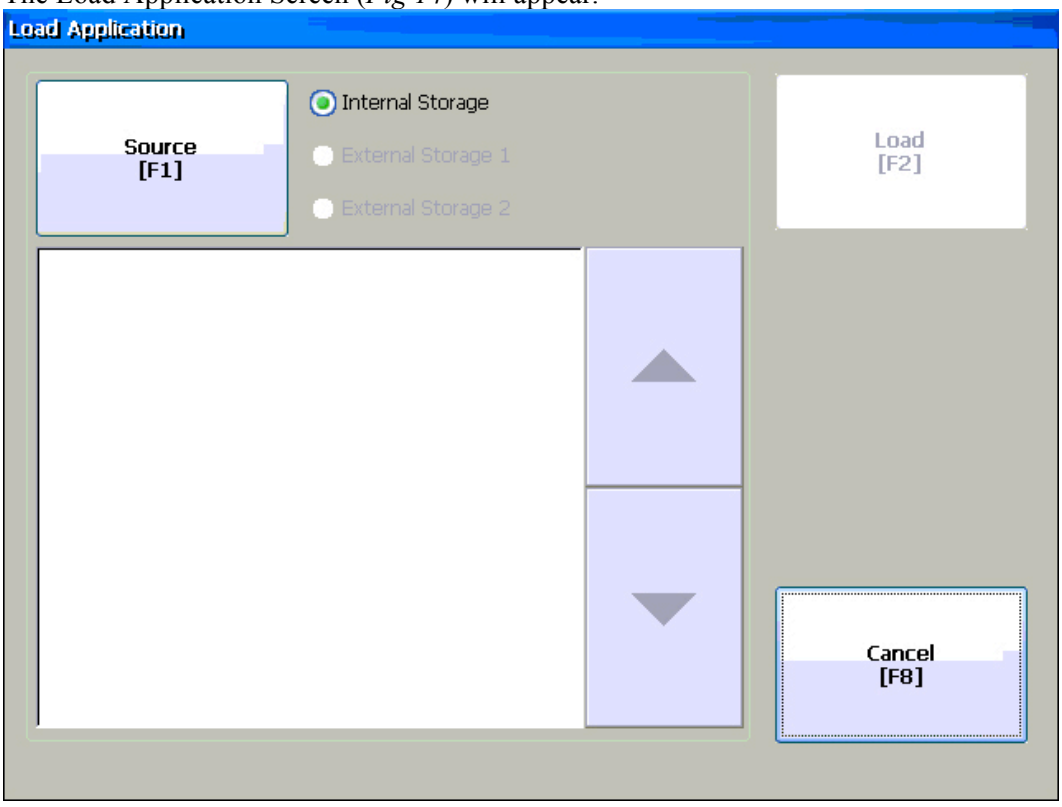

Fig 14

10. Press the "**Source [F1]**" button so the circle next to "**External Storage 1**" is filled.
11. Use the up and down arrows to select the "**VersaViewCE_LockDown.mer**" application.
12. Press the "**Load [F2]**" button.

13. The Replace Communications Confirmation Screen (*Fig 15*) will appear.

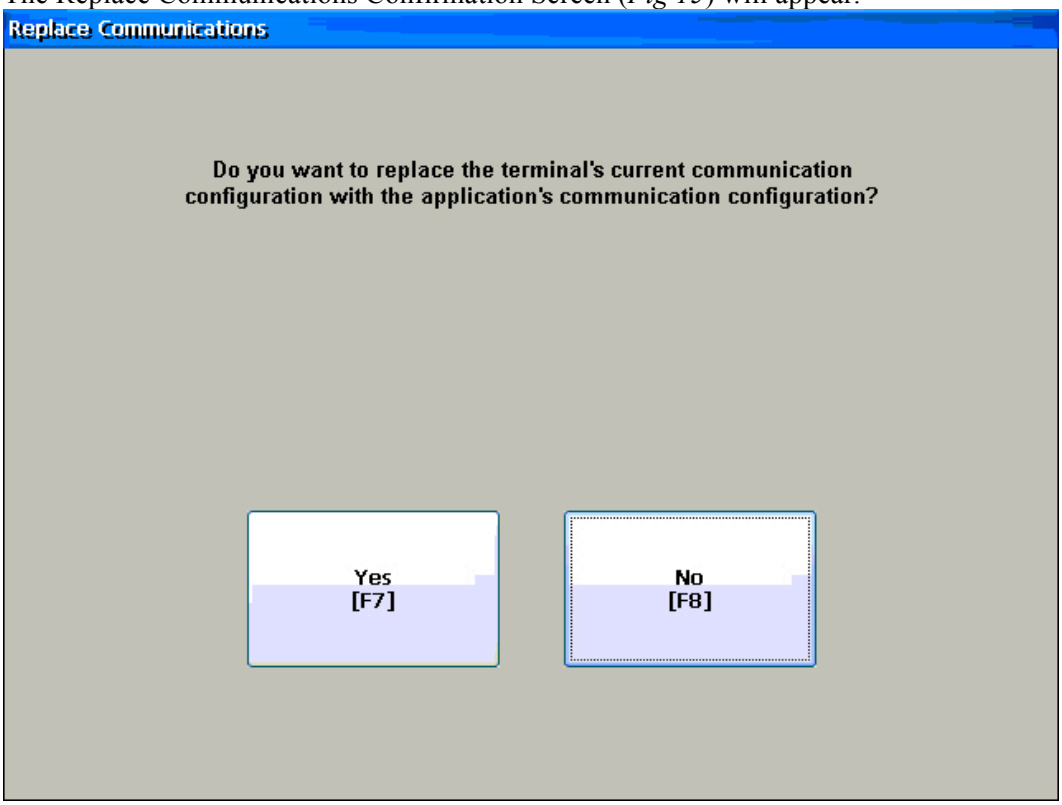

Fig 15

14. Press the "**Yes [F7]**" button.
15. The RSView ME Station Screen without an "**Exit [F8]**" button (*Fig 13*) will appear.
16. Press the "**Run Application [F2]**" button when it is no longer grayed out.

17. The application will start after a short time (*Fig 16*).

Fig 16

18. Press the "**VersaView Enable**" button.
19. "**VersaView Mode Enable**" message will be displayed.
20. Remove the **VersaView Program Compact Flash Card** from the display.
21. Press the "**Reboot**" button.
22. The display will reboot.
23. If an Error Screen (*Fig 10*) appears, Press the "**OK [F7]**" button to close the screen.
24. The RSView ME Station Screen with an "**Exit [F8]**" button (*Fig 12*) will appear.
25. Press the "**Exit [F8]**" button to bring up the Windows CE desktop (*Fig 11*).
26. Insert the **VersaView Firmware Upgrade Compact Flash Card** into the display.

27. The Firmware Upgrade Card Window (*Fig 17*) will appear.

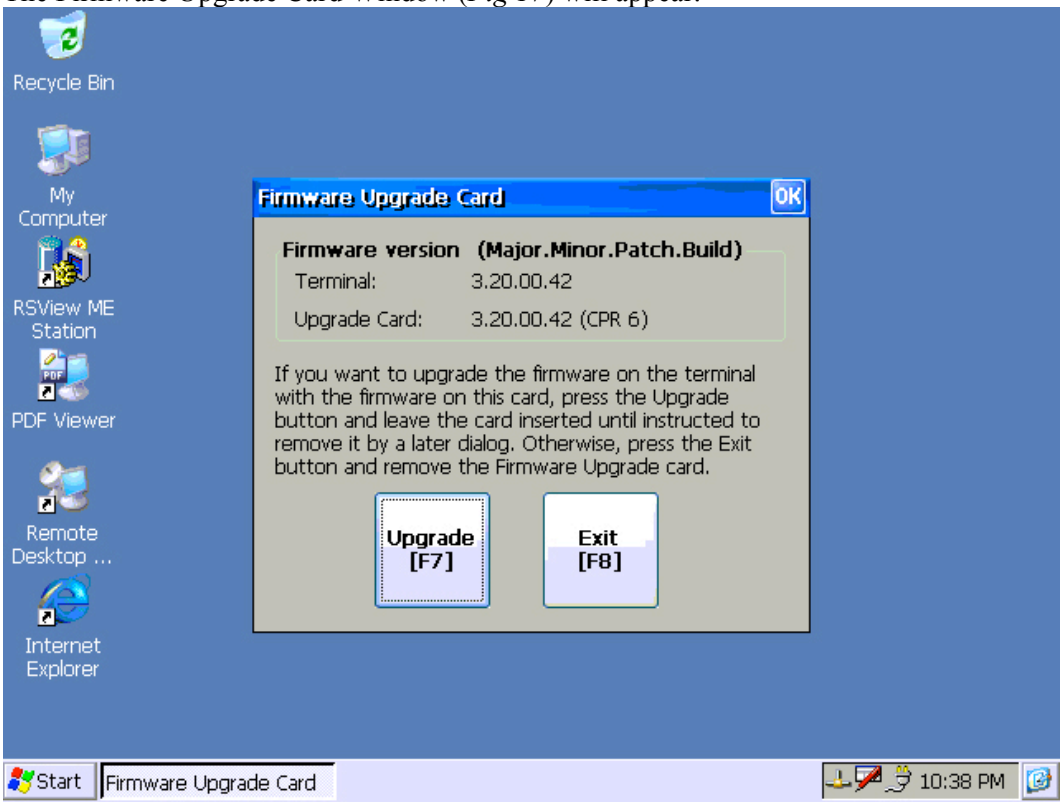
Recycle Bin
My Computer
RSView ME Station
PDF Viewer
Remote Desktop ...
Internet Explorer
Firmware Upgrade Card
OK
Firmware version (Major.Minor.Patch.Build)
Terminal: 3.20.00.42
Upgrade Card: 3.20.00.42 (CPR 6)
If you want to upgrade the firmware on the terminal with the firmware on this card, press the Upgrade button and leave the card inserted until instructed to remove it by a later dialog. Otherwise, press the Exit button and remove the Firmware Upgrade card.
Upgrade [F7]
Exit [F8]
Start
Firmware Upgrade Card
10:38 PM

Fig 17

28. When prompted to upgrade firmware, press the "**Upgrade [F7]**" button
29. The firmware upgrade process will begin and after a short time the display will reboot.

30. When the calibration screen (*Fig 18*) appears, follow the on-screen instructions (*use a pencil eraser, pen cap or other dull pointing device*).

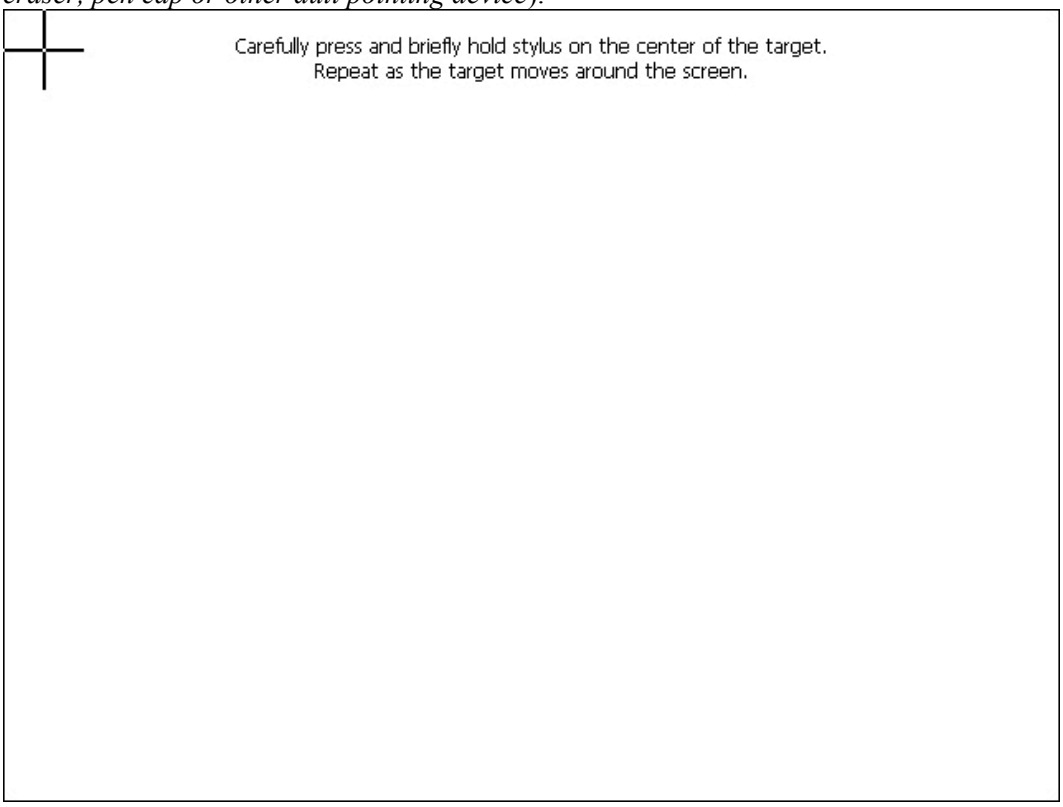

Fig 18

31. When the firmware upgrade complete window appears, remove the **VersaView Firmware Upgrade Compact Flash Card** from the display by pressing the Eject Button.
32. Press the "**Exit [F8]**" button.
33. If the VersaView boots to the RSView ME Station screen (*Fig 12*), press the "**Exit [F8]**" button to bring up the Windows CE desktop (*Fig 11*).
34. The Windows CE Desktop (*Fig 11*) will appear.
35. Insert the **new** VersaView Program Compact Flash Card labeled **744.00133.00 10P80S Disp Program**.
36. Tap the "**Start**" button in the bottom left portion of the screen.
37. Tap "**Programs**".
38. Tap "**Windows Explorer**".

39. A window will appear showing the contents of the "**My Computer**" folder (*Fig 19*).

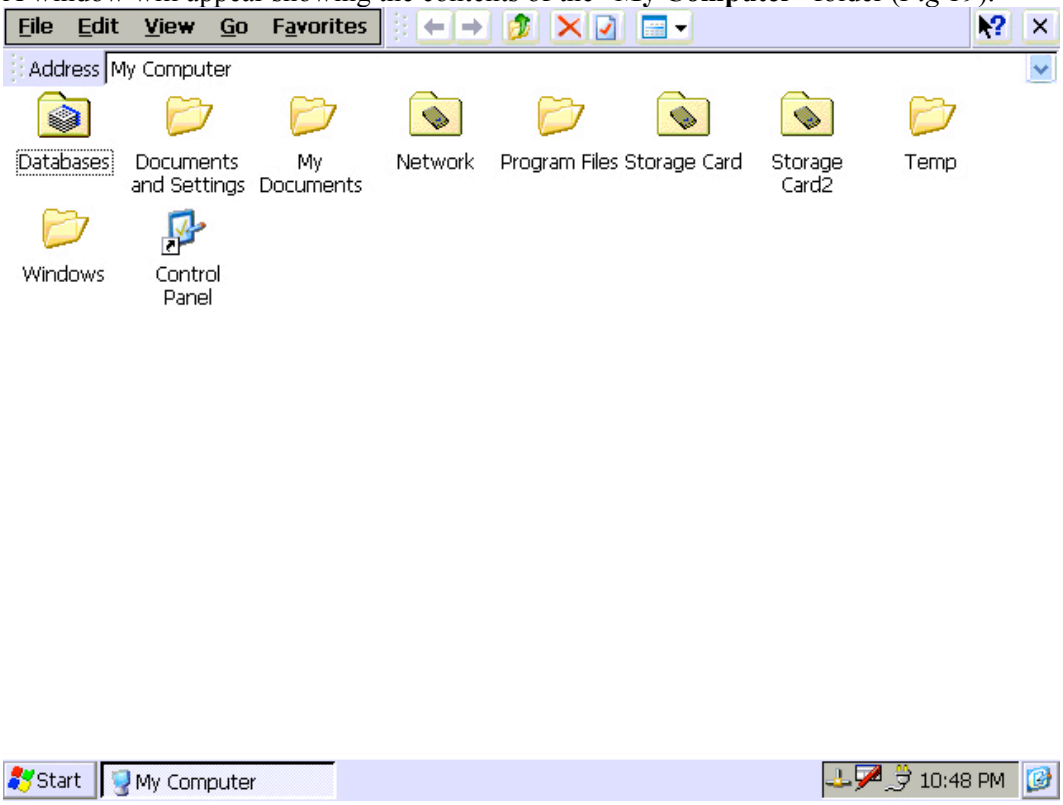

Fig 19

40. Double tap the "**Storage Card2**" folder.

41. A window will appear showing the contents of the "**Storage Card2**" folder (*Fig 20*).

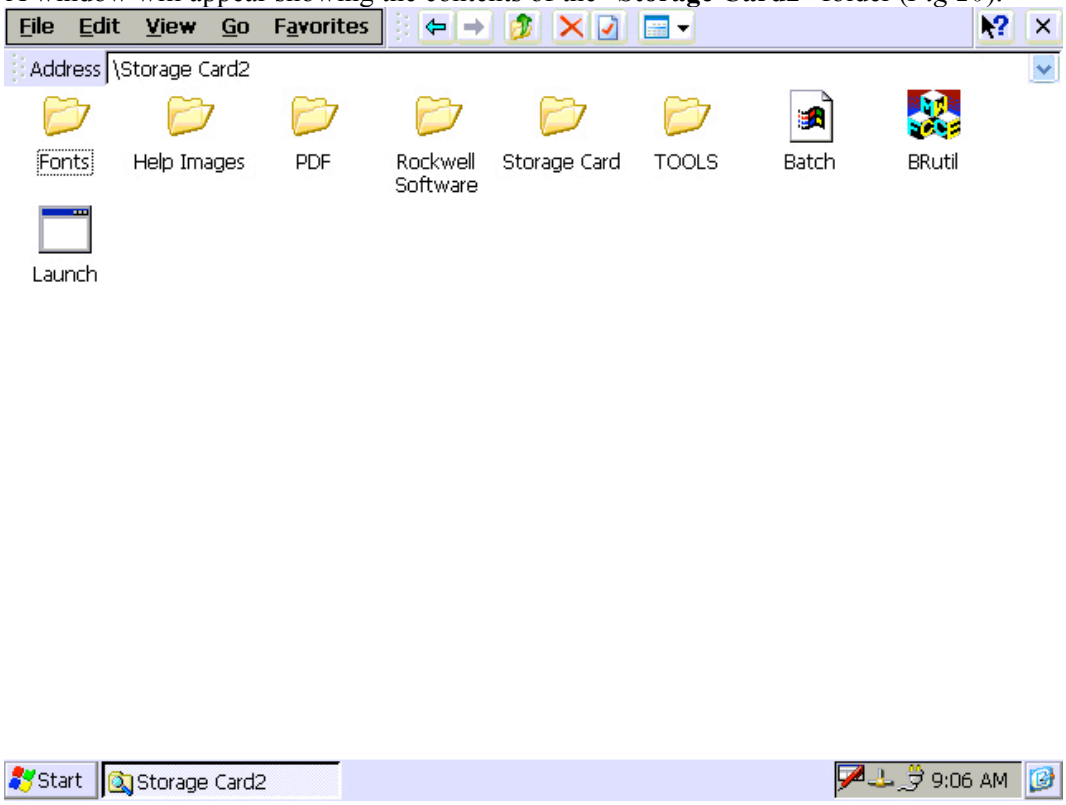

Fig 20

42. Double tap the "**BRutil**" icon.

43. The System Backup/Recover Window (*Fig 21*) will appear.

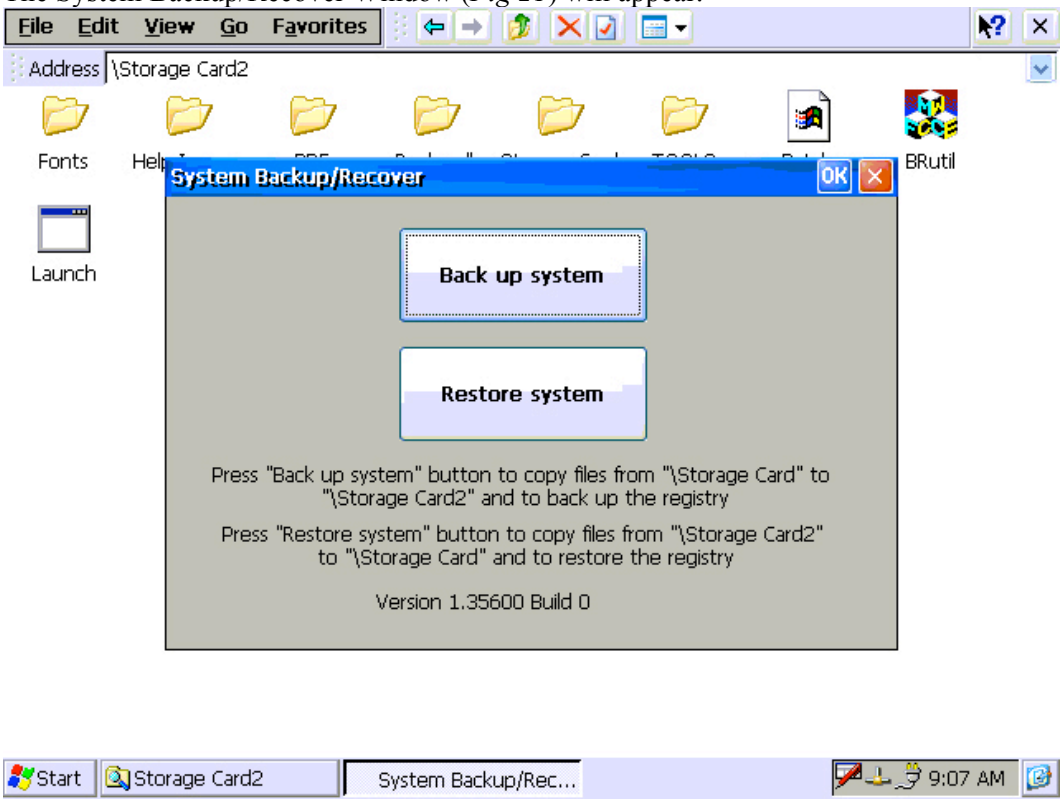
File Edit View Go Favorites
Address \Storage Card2
Fonts
BRutil
Launch
System Backup/Recover
OK
Back up system
Restore system
Press "Back up system" button to copy files from "\Storage Card" to "\Storage Card2" and to back up the registry
Press "Restore system" button to copy files from "\Storage Card2" to "\Storage Card" and to restore the registry
Version 1.35600 Build 0
Start
Storage Card2
System Backup/Rec...
9:07 AM

Fig 21

44. Press the "**Restore system**" button. DO NOT PRESS THE "BACK UP SYSTEM" BUTTON.

45. A Warning Window (*Fig 22*) will appear.

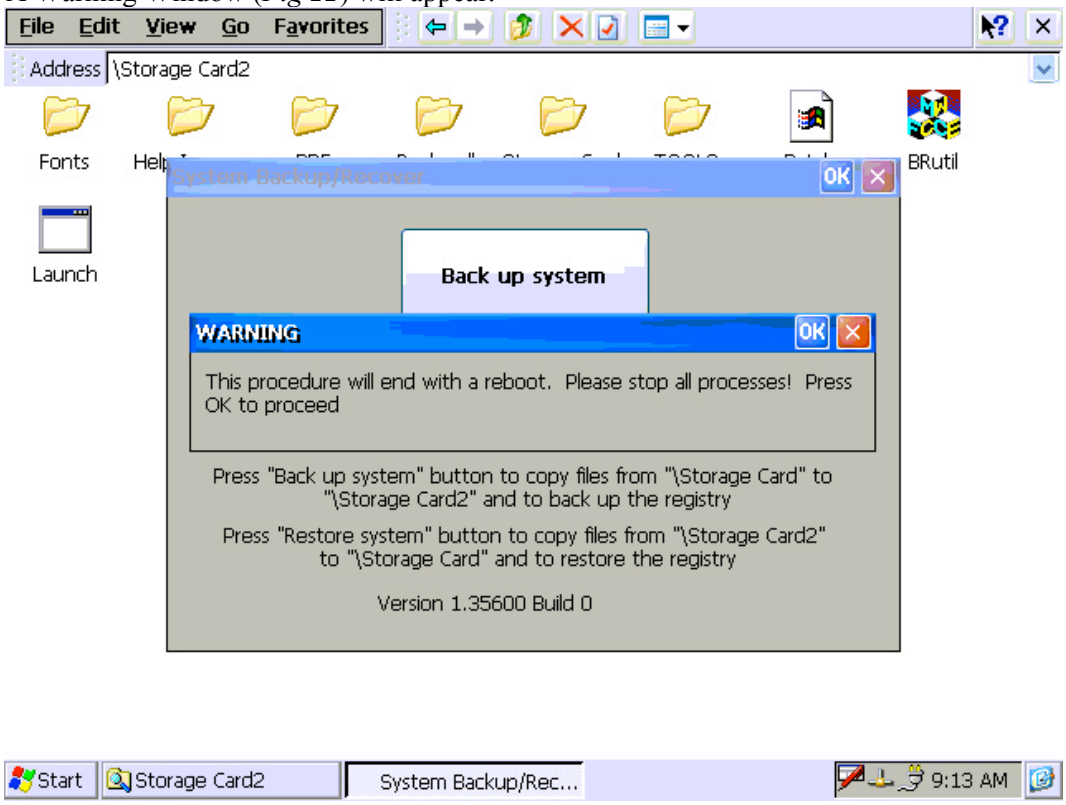
File Edit View Go Favorites
Address \Storage Card2
Fonts
BRutil
Launch
System Backup/Recover
OK
Back up system
WARNING
OK
This procedure will end with a reboot. Please stop all processes! Press OK to proceed
Press "Back up system" button to copy files from "\Storage Card" to "\Storage Card2" and to back up the registry
Press "Restore system" button to copy files from "\Storage Card2" to "\Storage Card" and to restore the registry
Version 1.35600 Build 0
Start
Storage Card2
System Backup/Rec...
9:13 AM

Fig 22

46. Press the "**OK**" button in the upper right corner of the Warning Window (*Fig 22*).
47. After a short delay the VersaView will reboot.
48. If the calibration screen (*Fig 18*) appears, follow the on-screen instructions (*use a pencil eraser, pen cap or other dull pointing device*).
49. The Windows CE desktop will appear for a short time. The VersaView will then launch the Primary Display program.
50. If you are upgrading/setting up the Primary screen, the VersaView setup is complete. If you are setting up a Remote screen, continue to the next section "**Remote Display**".

Remote Display

1. Remove the VersaView Program Compact Flash Card labeled **744.00133.00 10P80S Disp Program**.
2. Cycle power on the VersaView.
3. An Error Screen (*Fig 10*) will appear stating that the Runtime file was not found.
4. Press the "**OK [F7]**" button.
5. The RSView ME Station Screen (*Fig 12*) will appear.
6. Insert the **new** VersaView Program Compact Flash Card labeled **744.00133.00 10P80S Disp Program**.
7. Press the "**Load Application [F1]**" button.
8. The Load Application Screen (*Fig 13*) will appear.
9. Press the "**Source [F1]**" button so the circle next to "**External Storage 1**" is filled.
10. Use the up and down arrows to select the appropriate program for the display you are setting up:
    - Remote Display #1 – Select "**745_00083_00.mer**".
    - Remote Display #2 – Select "**745_00084_00.mer**".
    - Remote Display #3 – Select "**745_00085_00.mer**".

- Remote Display #4 – Select "**745_00086_00.mer**".

11. Press the "**Load [F2]**" button.
12. The Replace Communications Confirmation Screen (*Fig 15*) will appear.
13. Press the "**Yes [F7]**" button.
14. The RSView ME Station Screen will appear (*Fig 12*).
15. The application will load. This will take several seconds. While it is loading several buttons will be grayed out.
16. When the application completes loading, press the "**Terminal Settings [F4]**" button.
17. The Terminal Settings Menu will appear (*Fig 23*).

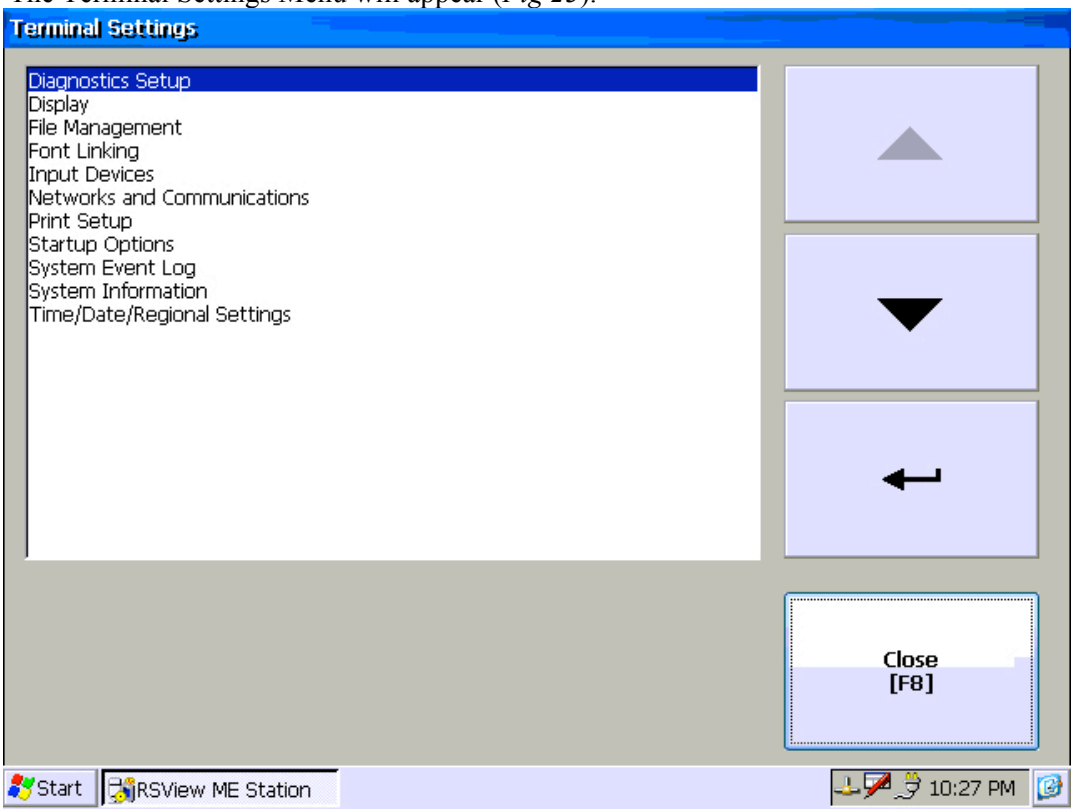

Fig 23

18. Press the down arrow "▼" button to highlight "**Startup Options**".
19. Press the enter " ↵ " button to select "**Startup Options**".

20. The Startup Options Screen (*Fig 24*) will appear.

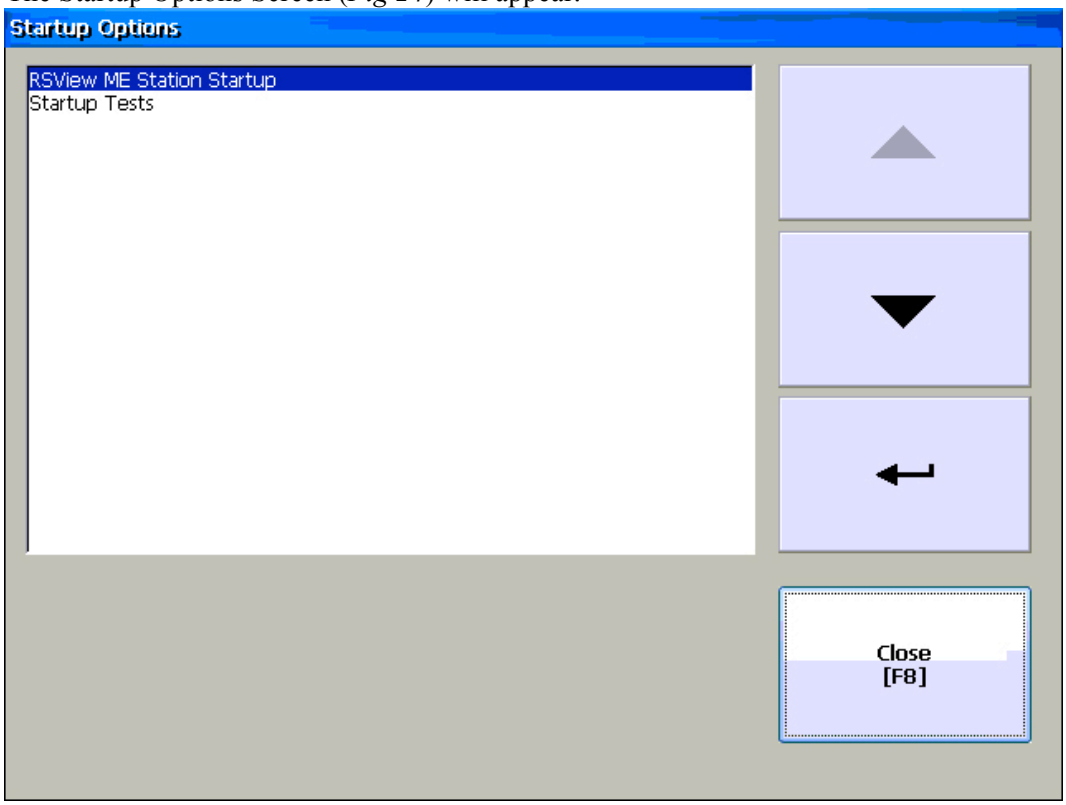

Fig 24

21. Press the enter " ↵ " button to select "**RSView ME Station Startup**" button.

22. The RSView ME Station Startup Screen (*Fig 25*) will appear.

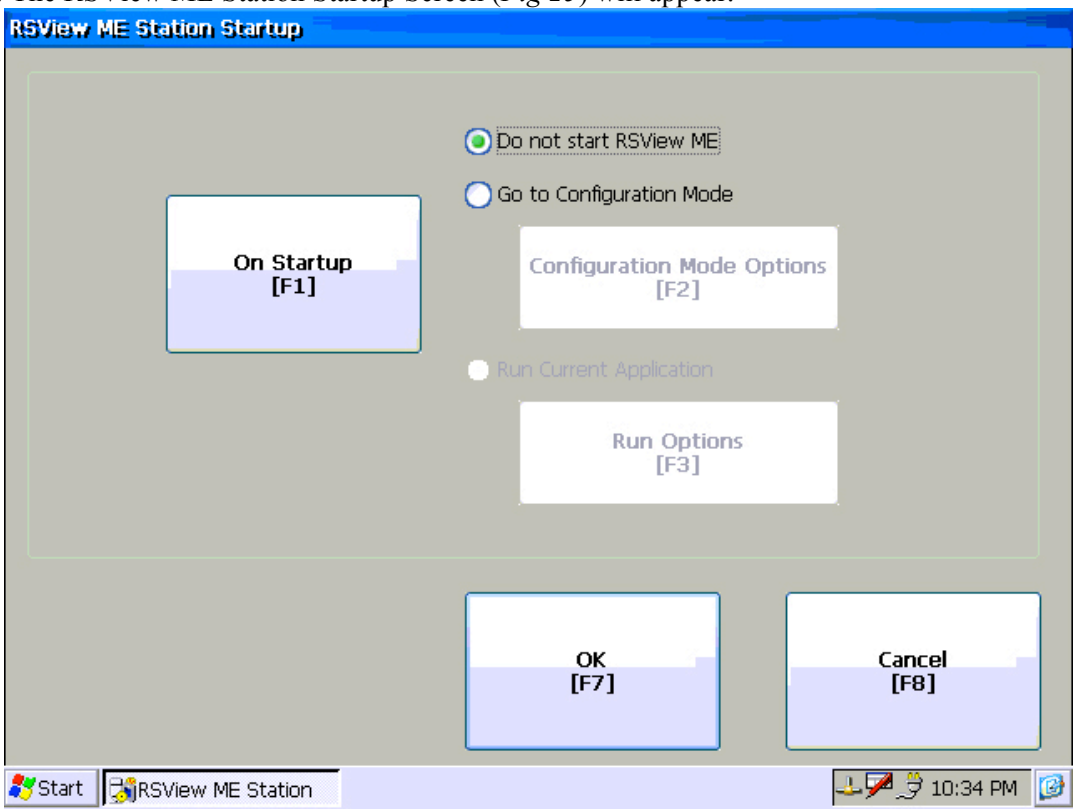

Fig 25

23. Verify that the circle next to "**Run Current Application**" is filled. If not, press the "**On Startup [F1]**" button until the "**Run Current Application**" is filled.
24. Press the "**OK [F7]**" button.
25. The Startup Options Screen (*Fig 24*) will appear.
26. Press the "**Close [F8]**" button.
27. The Terminal Settings Menu (*Fig 23*) will appear.
28. Press the up arrow "▲" button to highlight "**Networks and Communications**".
29. Press the enter " ↵ " button to select "**Networks and Communications**".

30. The Networks and Communications Menu (*Fig 26*) will appear.

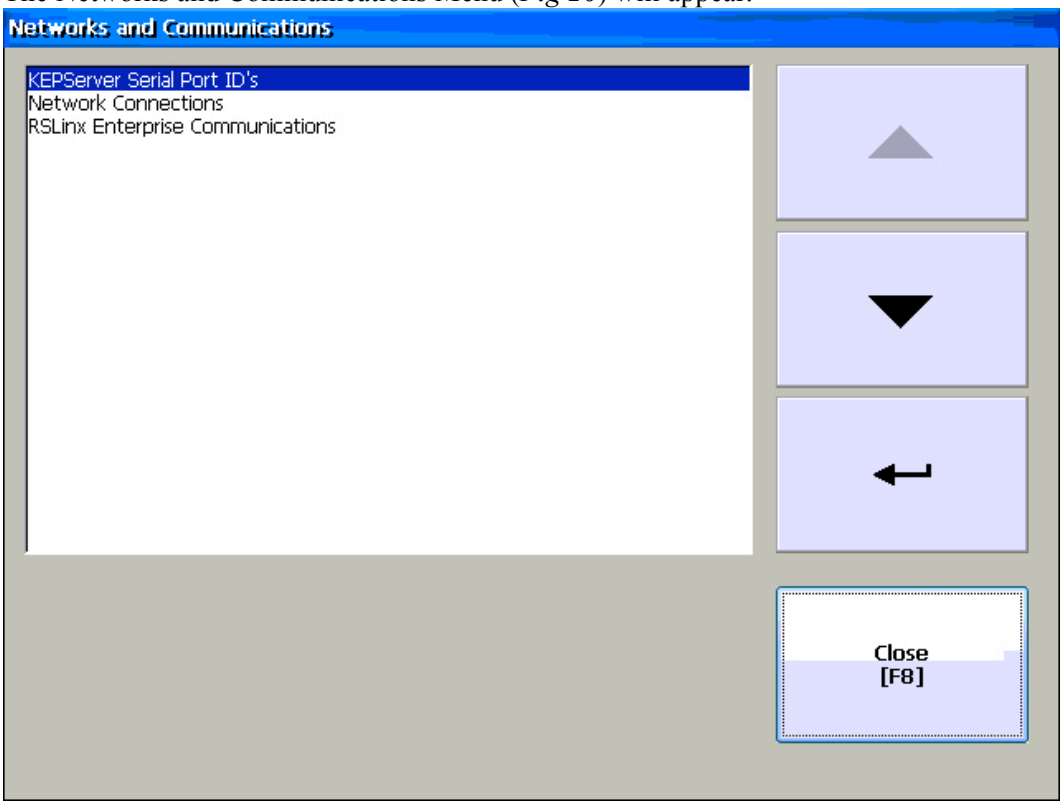

Fig 26

31. Press the down arrow "▼" button to highlight "**Network Connections**".
32. Press the enter " ↵ " button to select "**Networks Connections**" .

33. The Network Connections Menu will appear (*Fig 27*).

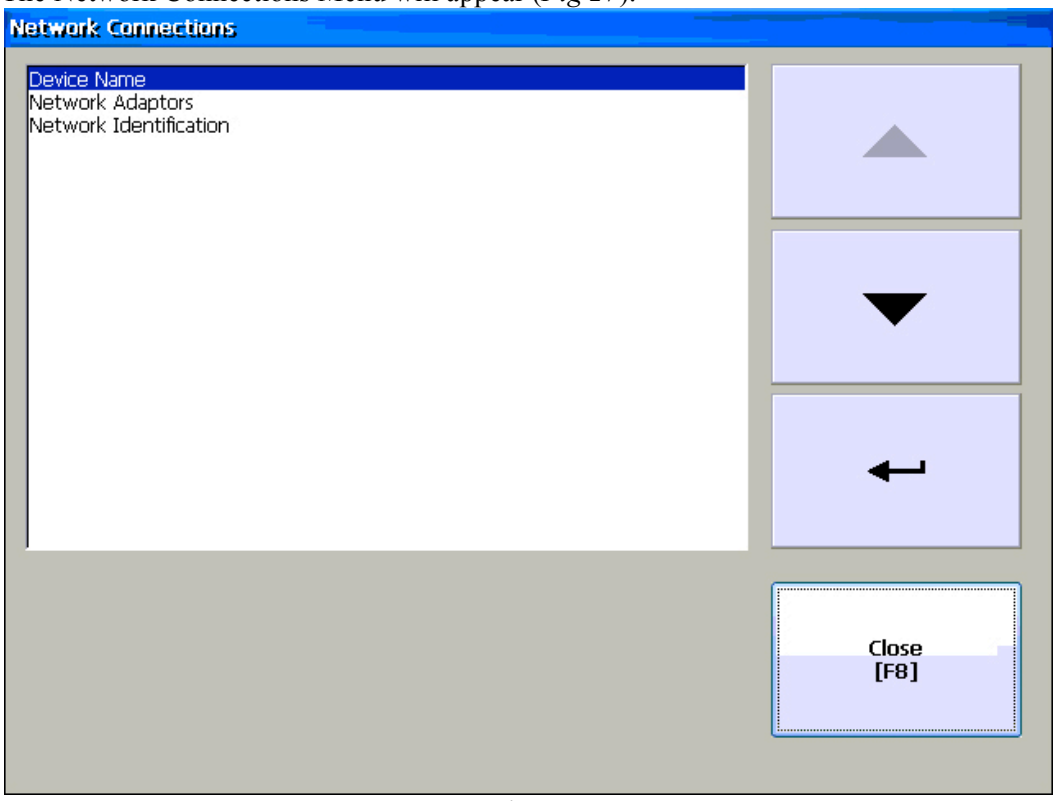

Fig 27

34. Press the down arrow "▼" button to highlight "**Network Adaptors**".
35. Press the enter " ↵ " button to select "**Networks Adaptors**".

36. The Network Adaptors Screen will appear (*Fig 28*).

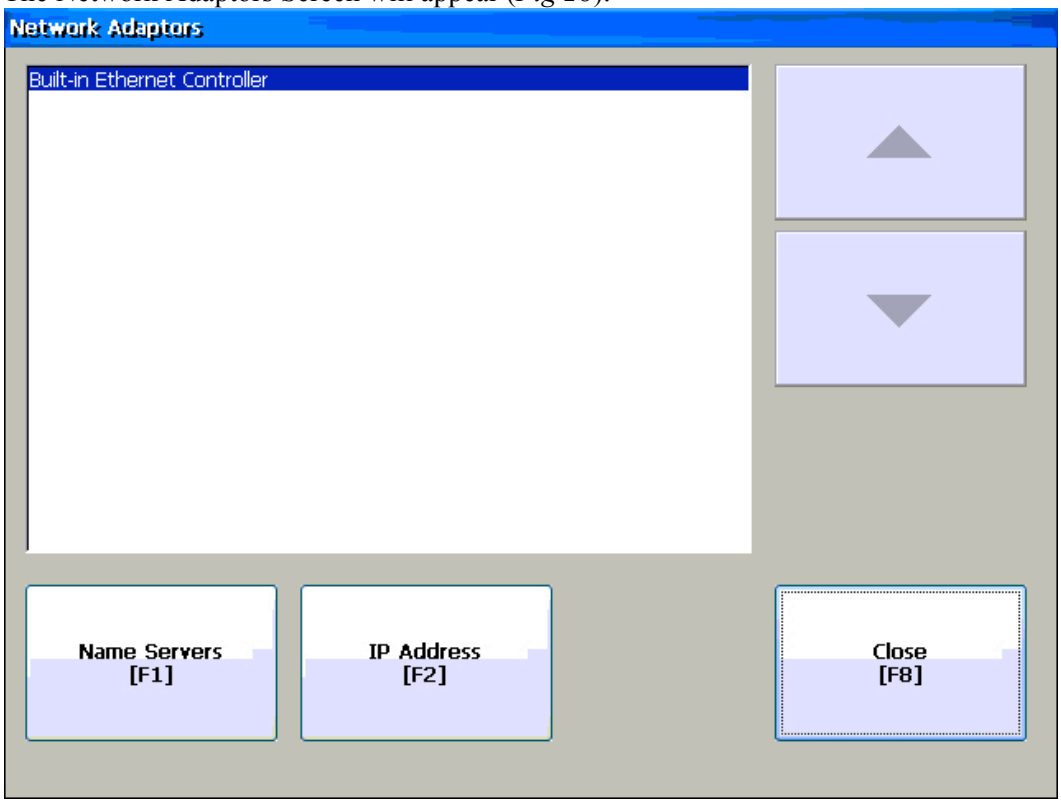

Fig 28

37. Press the "**IP Address [F2]**" button.

38. The IP Address screen will appear (*Fig 29*).

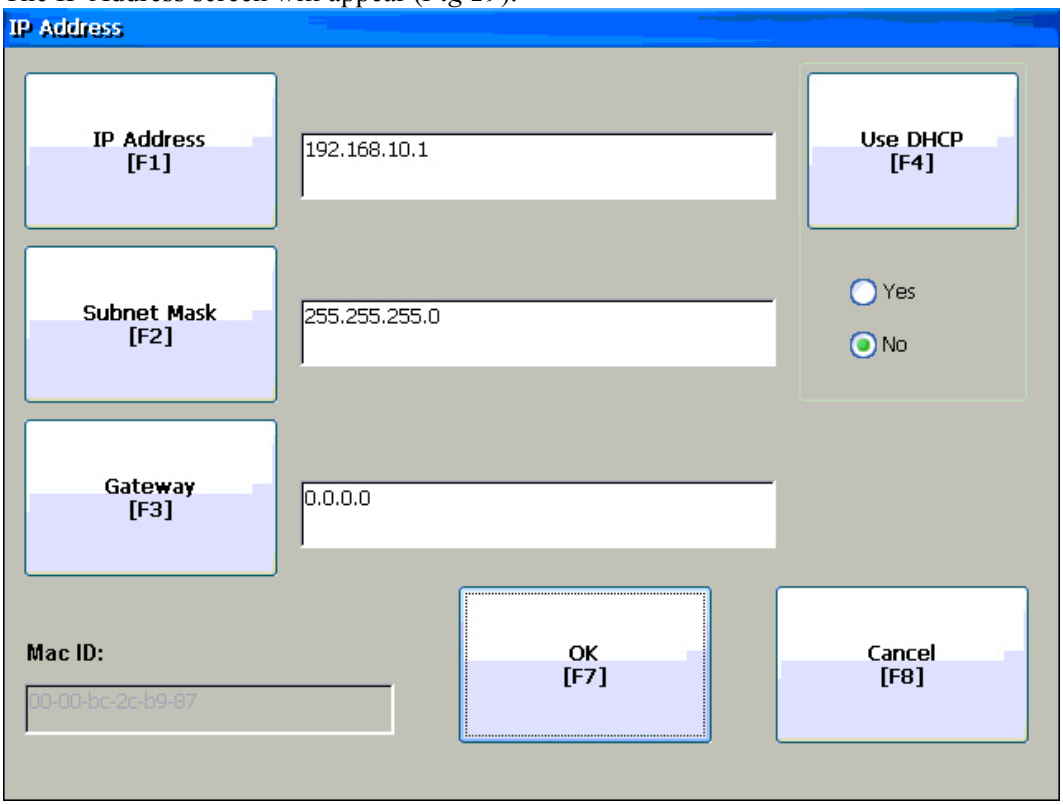

Fig 29

39. Press the "**IP Address [F1]**" button.

40. A keyboard will appear (*Fig 30*).

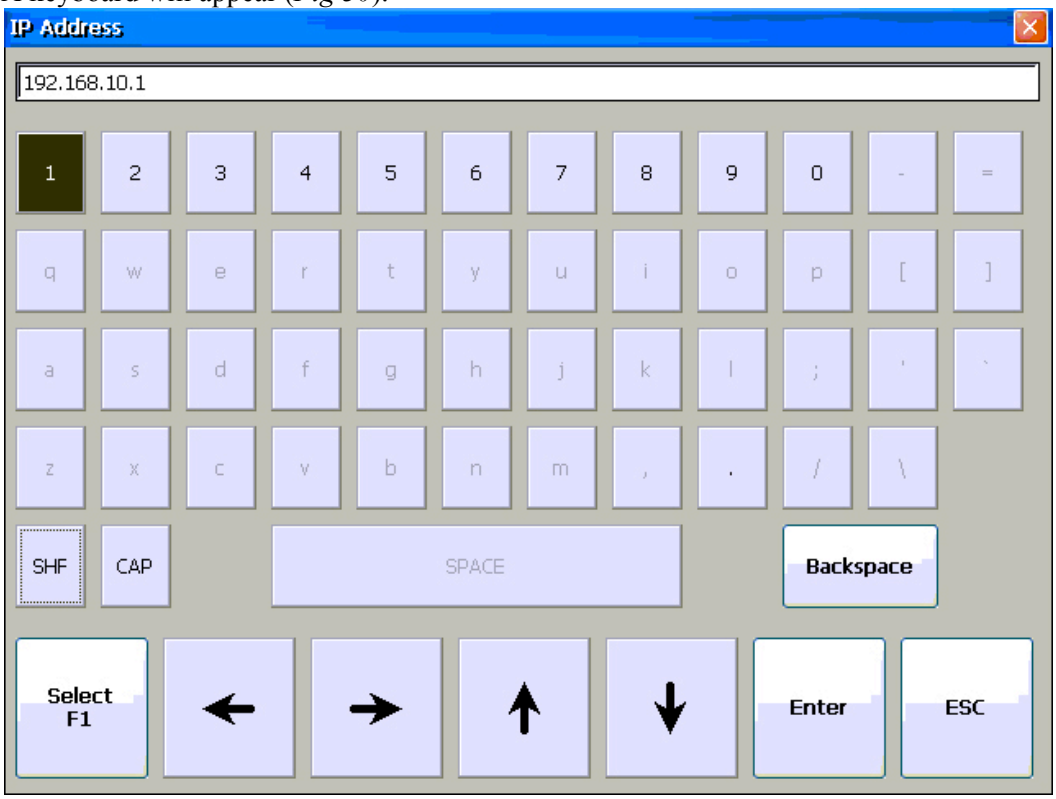

Fig 30

41. Enter the appropriate IP Address for the display you are setting up:
    - Remote Display #1 - Enter "**192.168.10.2**" via the keyboard.
    - Remote Display #2 - Enter "**192.168.10.3**" via the keyboard.
    - Remote Display #3 - Enter "**192.168.10.4**" via the keyboard.
    - Remote Display #4 - Enter "**192.168.10.5**" via the keyboard.
42. Press the "**Enter**" key to close the keyboard.
43. The IP Address Screen (*Fig 29*) will appear.
44. Press the "**OK [F7]**" button.

45. After a short delay the Adapters Screen (*Fig 31*) will appear.

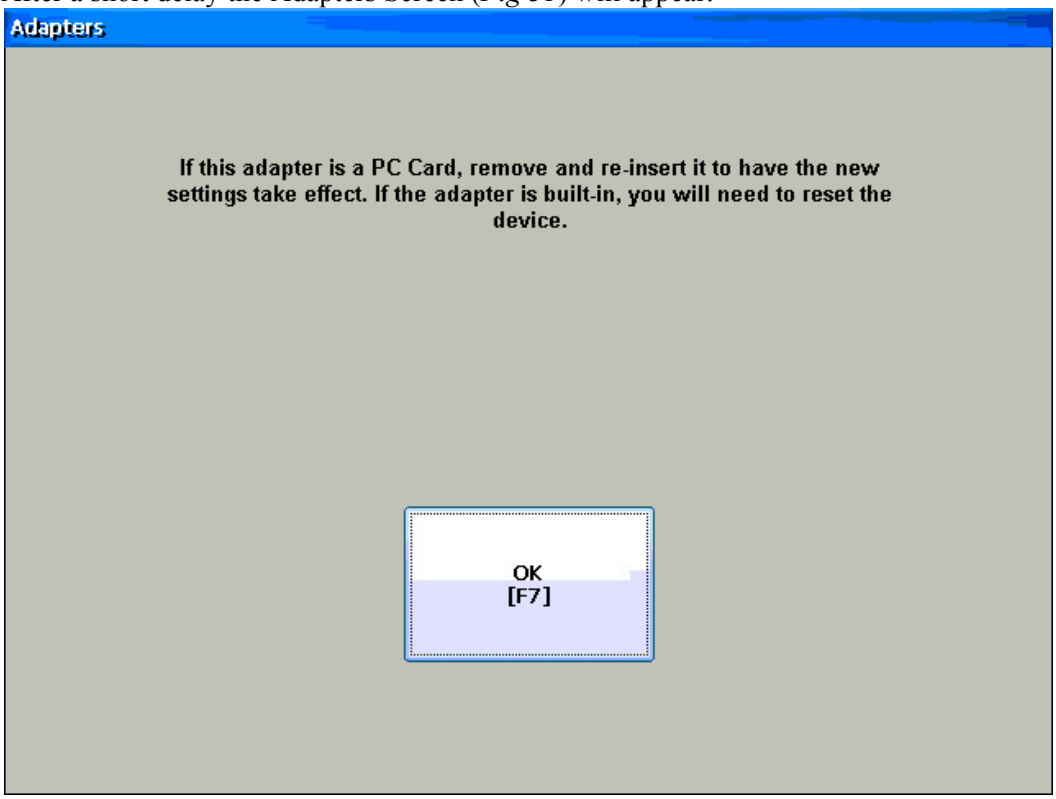
Adapters
If this adapter is a PC Card, remove and re-insert it to have the new settings take effect. If the adapter is built-in, you will need to reset the device.
OK
[F7]

Fig 31

46. Press the "**OK [F7]**" button.
47. The Network Adaptors Screen will appear (*Fig 28*).
48. Press the "**Close [F8]**" button.
49. The Network Connections Menu will appear (*Fig 27*).
50. Press the "**Close [F8]**" button.
51. The Network and Communications Menu will appear (*Fig 26*).
52. Press the "**Close [F8]**" button.
53. The Terminal Settings Menu will appear (*Fig 23*).
54. Press the "**Close [F8]**" button.
55. The RSView ME Station Screen will appear (*Fig 12*).
56. Press the "**Reset [F7]**" button.

57. A Reset Confirmation screen will appear (*Fig 32*).

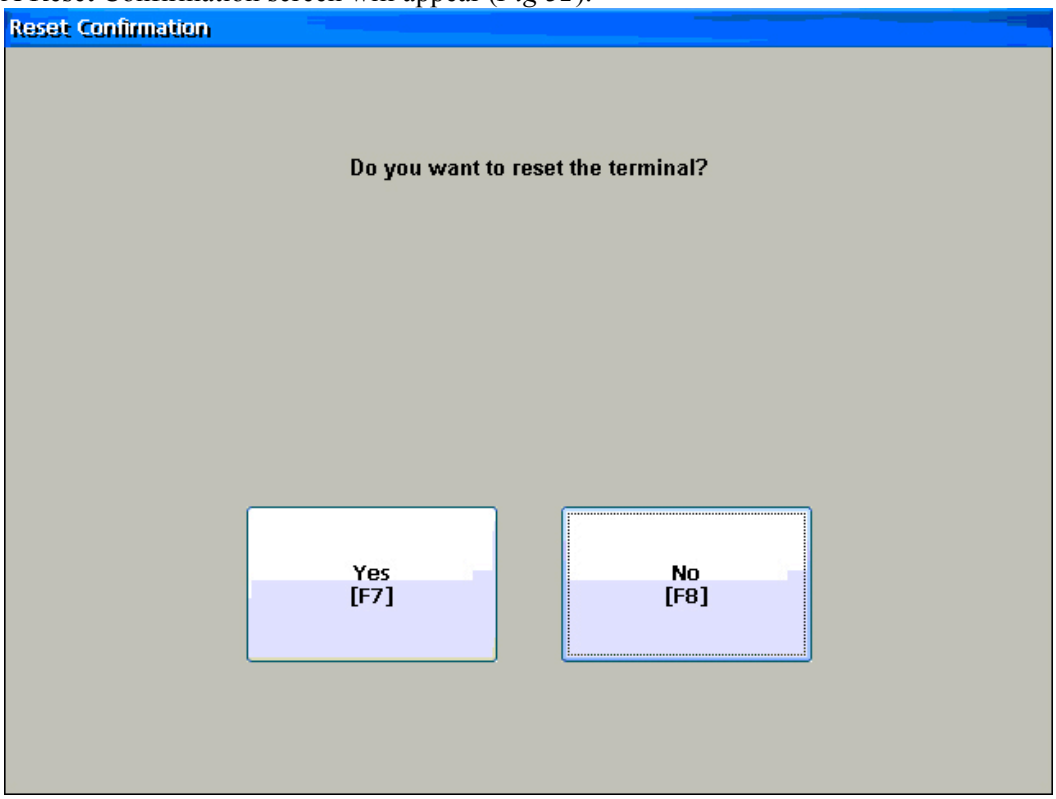

Fig 32

58. Press the "**Yes [F7]**" button.
59. After a short delay the screen will reboot.
60. While the VersaView is rebooting, plug the Ethernet cable back in.
61. The Windows CE desktop will appear for a short time. The VersaView will then launch the Remote Display program.